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THE CRITICISM OF THE CONCEPT OF SUBSTANCE BY THE SIX AMERICAN NEO-REALISTS

by

Louis William Norris

(A.B., Otterbein College, 1928; S.T.B., Boston University, 1931)

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TABLE OF CONTENTS

CHAPTER PAGE

CHAPTER PAGE

CHAPTER PAGE

CHAPTER PAGE

CHAPTER PAGE

CHAPTER PAGE

CHAPTER PAGE

CHAPTER PAGE

CHAPTER PAGE

CHAPTER PAGE

CHAPTER PAGE

CHAPTER PAGE

CHAPTER PAGE

CHAPTER I

THE PROBLEM

Many insights in the history of thought have come through criticism of views held by preceding generations. To note carefully the critique by American neo-realists of the once highly respected concept of substance may, therefore, lead to new insight.

A. THE REALISTS AND THEIR POLEMIC

The problem of this dissertation is to discover whether the criticisms, both explicit and implicit, which "the six" American neo-realists direct against the concept of substance are valid. It is not only the question of whether the term "substance" can be largely avoided in the interpretation of reality, as this school of realism contends, but also of whether the functions once performed by that concept have been otherwise provided for, or shown to be no longer necessary. Important concepts in these statements of the problem need defining.

Precisely what the rejected term "substance" means, can be determined only after its use in the history of philoso-

phy has been examined.[1] A preliminary definition must be hazarded, however, in order for the problem under consideration to have any meaning. Broadly defined, substance means that fundamental and underlying reality or substratum which has attributes, properties, accidents, or qualities.

Logically substance may be regarded as the subject of propositions about which qualities and relations may be predicated, without its being a quality or relation itself. From the point of view of metaphysics, substance means permanent "self-existence," in spite of changing qualities. It is "der selbständige, beharrliche Träger der unselbständigen, wechselnden Eigenschaften (Akzidentien)," as Thormeyer puts it.[2] Loewenberg discusses an "epistemological" use of the term,[3] but his concept of substance as the union and permanence within the many and changing qualities and properties of the object of knowledge or "thing," is really a particular instance of the metaphysical meaning of the term.

An account of "the six" neo-realists,[4] whose criti-

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[1]Chapter II (cf. infra, pp. 25-60) of the present work is devoted to this task.

[2]PWB, 191. This and other abbreviations are explained in the bibliography.

[3]Art. II, 11-12.

[4]The term "neo-realism" in its various forms refers henceforth to the American school, unless otherwise stated.

cisms of substance are here under consideration, will serve to clarify the problem further.

Ralph Barton Perry of Harvard, William Pepperell Montague of Columbia, Edwin Bissell Holt of Harvard until 1918, and a visiting professor of psychology at Princeton from 1926 to 1936, Walter Taylor Marvin of Rutgers, Walter Boughton Pitkin of Columbia, and Edward Gleason Spaulding of Princeton, have been "generally called the neo-realists" since the publication of "A Program and First Platform of Six Realists"[1] in the Journal of Philosophy in 1910.[2] Though Woodbridge, McGilvary, and Fullerton may be classed as neo-realists, "the six" were subsequently held to typify the movement.

Woodbridge, along with Montague and Perry, was a significant pioneer in the movement.[3] Not only were some of his papers prominent in the formulation of neo-realistic thought,[4] but his personal influence and his support in the

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[1]Harlow, BGSR, 53.

[2]This journal will be referred to here by the shorter title, in accordance with present usage, though some articles quoted appeared when the journal was known by its longer name, The Journal of Philosophy, Psychology, and Scientific Method. The "Program and First Platform" appeared originally in vol. 7, 393-401, and was later included in The New Realism as an appendix. Cf. Holt et al., NR, 471-486.

[3]Cell, Art. I, 405.

[4]Cf. Arts. I, II, III.

Journal of Philosophy, of which he is editor, have undoubtedly helped to organize this particular phase of the reaction against idealism.[1] McGilvary[2] and Fullerton[3] wrote important constructive works and did excellent service in defense of the colors when the latter were under fire.

This dissertation will be restricted to the views of "the six" for three reasons. In the first place, the earlier activity of these three older realists was "overshadowed" by the more aggressive tactics of the six.[4] The "Program and First Platform" which resulted from the meetings and cooperative work of the six during 1909 and 1910 made them the most important representatives of the school. In the second place, there was practical agreement between the six and their three seniors on certain essentials.[5] In studying the views of the six, therefore, we are dealing with doctrines fairly though perhaps not wholly representative of the entire school. Such a restricted study has the practical advantage of reducing to a minimum the diversities be-

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[1]Cohen, Art. I, 263-264.

[2]Cf. Arts. I, II, III, IV, V.

[3]Cf. Arts. I, II, and WWLI.

[4]Harlow, BGSR, 33n.

[5]Ibid., 32-33.

tween individual thinkers, which are at best quite numerous. Finally, this dissertation is concerned only with the criticism of substance by the neo-realists, and not with an account of the entire system of each man except in so far as references to particular ideas will be necessary in order to understand the criticisms of substance. The six can furnish such typical criticisms, and one of their number has been particularly outspoken in his denial of the doctrine.[1]

The realism represented by these six, and within which the criticisms of substance are to be found, can be adequately defined only after a detailed study of all the literature produced by the group. But since this is not to be undertaken here, a makeshift definition must be supplied. American neo-realism,[2] as represented by the six here considered, may be understood as that view which finds, through analysis, the ultimate constituents of reality to be neutral entities, and which holds that objects, though immediately

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[1]This is the theme of one of Spaulding's major works, The New Rationalism. For bibliographical data see the bibliography.

[2]Obviously the term "realism" throughout this dissertation is used in its philosophic sense. Philosophic realism shares the interest of literary and artistic realism in objects as they are, and refuses, as do they, to make conscious selves the centers of importance. There is little further harmony between the philosophic and other uses of the term. Cf. Hocking, TOP, 327-328.

known, are in no way dependent upon any mind, divine or human. This definition omits several important elements in neo-realism, but it has the merit of distinguishing the latter from idealism, by its stress upon the object's independence of all mind,[1] and from critical realism, by its emphasis upon immediacy in knowing and neutral entities in metaphysics.

In the light of these definitions, it appears that the problem under consideration may be simply stated as the question of whether these six realists have shown that there is no underlying reality in which the qualities of things inhere, or that persists amid the change of these qualities and accidents. The importance of the problem may now be appreciated.

B. IMPORTANCE OF THE PROBLEM

Justification for studying the doctrine of substance lies in the great confusion of tongues on the subject at present. Much of the disagreement about substance in philosophy has been caused by recent developments in science. So long as the classical or Newtonian physics was generally accepted by scientists, substance held a reasonably stable

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[1]Haldane is a typical example of the current tendency to define neo-realism so as not to distinguish it from idealism. Vid. ROR, 261.

position in philosophical thought.

Two elements in recent science, however, have tended to arouse discontent with the concept of substance. First of all, science has brought into question the existence of substance through its analysis of material "stuff" into molecules, atoms, electrons, and protons.[1] The atom, it is held, is not a substantial entity, but a field of activity, which constitutes a veritable cosmos in itself. In the second place, the use of symbols in science has cast doubt upon the need for knowing anything about the substratum of things. Much, perhaps enough, can be known, it is claimed, by letting symbols represent things. The thing itself is not a substance with attributes, but a mathematical quantity in relation to other quantities. Some philosophers have concluded that since substance is not known and really need not be known, it is an unnecessary hypothesis.

It is important to evaluate the neo-realistic criticisms of substance in view of the fact that the doctrine has had a long and honorable history.[2] To discard it now would mean the rejection of established insights in the history of philosophy. Divorce in old age often reflects upon the plain-

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[1]Authority for assertions made here about developments in science will be given in detail in chapter III.

[2]This will be shown in chapter II.

tiff, but still, in the philosophic court, criticisms of any concept must always be heard without prejudice.

The importance of the problem remains even though some of the six neo-realists have changed their views and others have followed different interests since the publication of the joint volume. Neo-realism never became a fully developed school of thought. Its leaders failed to achieve a "complete philosophy."[1] On the other hand, the school has become more and more disorganized since about 1914. Nevertheless, the views once held by the six, and still held in an enlarged form by some of them, are important in themselves for they constitute an alternative in philosophy. Whether neo-realism has suggested the proper attitude toward substance in the light of recent developments in logic and science is a question that remains to be answered, no matter what the state of the school at present.

A further indication of the importance attaching to the problem of substance rests in the fact that some form of

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[1]Holt et al., NR, 36. The New Rationalism, which appeared in 1918, may to some extent be considered a completion of the neo-realist position, since it treats some problems not considered in the cooperative volume, and since it represents an effort at cooperation between Spaulding and other members of the school. Spaulding says in the preface (p. viii), "The present volume is not cooperative as was The New Realism . . . but it is, nevertheless, in part an outgrowth of frequent discussions with these friends and of definite attempts to cooperate."

this concept is accepted by the two other main schools of American thought. The critical realists have maintained, as Hocking says, "the tradition of an extra-mental substance."[1] Some idealists,[2] at least, have continued to hold to the doctrine of substance though they have reinterpreted it in terms of purposive, conscious experience. Obviously, the use of the term is quite different in these two schools, but some of its historic functions have been retained. Should the neo-realistic objections to the doctrine turn out to be completely or even partially valid, modification of the views held by critical realism and idealism would be in order. If, on the other hand, they can be shown to be invalid,[3] one more barrier retarding the present movement toward agreement in American thought would be removed. Any one of these possible results is fraught with considerable importance for philosophy.

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[1] TOP, 341n. Belief in substance is especially characteristic of Sellars, PPR, 274-310, and Santayana, SAF, 182-191. Cf. Pratt, PR, 64-73.

[2] Barrett points out that "present-day idealism" employs the term substance not as "a substratum of things" but as "a structure of activities." (PHI, 134, cf. Leighton, MAC, 189.) Some personalists find substance to be "active, causal, purposive personality." (Brightman, Art. II, 48.) For Hocking substance is rather loosely synonymous with "reality." (MGHE, 410.)

[3] Perry rightly observes that "the principle of substance betrays realism into the hands of its enemy." (Art. IV, 103.)

C. THE SOURCES

So far as known to the present writer, an investigation of neo-realism with regard to its criticisms of substance has not yet been made. Important scholars have, it is true, observed that neo-realists are antagonistic to substance[1] but none has worked out the implications of this antagonism.

Good handbooks are available for the study and criticism of neo-realism as a whole. For this purpose the books by Kremer,[2] Evans,[3] Hasan,[4] Ray,[5] and Harlow,[6] are useful.[7] The average text on the introduction to philosophy devotes

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[1]Cf. Kremer, NA, 302, Verda, NRLS, 110, Sheldon, SSPD, 180-181, Knudson, POP, 413-417, 410.

[2]Ibid.

[3]NROR. While British and American neo-realism are treated together, they are not confused.

[4]ROR. Historical material is valuable, but criticisms are sometimes biased.

[5]CNR. This is a good recent exposition of the concept of consciousness in British and American neo-realism. Its discussions of the ontological basis of consciousness are illuminating. Criticisms are made from a position close to that of S. Alexander.

[6]BGSR. The growth of critical realism is traced along with neo-realism.

[7]Verda's book (NRLS) is helpful in showing the attitude of the Catholic church toward neo-realism, but it betrays too strong bias for general use.

considerable space to the movement.[1] Articles too numerous to mention, which appeared in the Journal of Philosophy and in the Philosophical Review as well as in other journals of lesser importance for the next four years after the publication of "The Program and First Platform," dealt with particular issues in the movement and with the development as a whole. None of these writings, however, were systematic studies concerning the neo-realistic criticisms of substance, or the significance of that critique for philosophy.

The paucity of recent material on the general notion of substance is remarkable. Cassirer's Substanz- und Funktionsbegriff, translated in 1923,[2] and "The Problem of Substance," a University of California Publication in Philosophy for 1927, edited by Adams, Loewenberg, and Pepper,[3] are both important systematic studies of the idea. Cassirer treats the subject from his position as a neo-Kantian phenomenalist, while the contributors to "The Problem of Substance" approach the issue from many different points of

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[1] Cf. for example texts of such differing method as Hocking, TOP, 336-376, Leighton, FOP, 320-326, 341-342, Brightman, ITP, 234-236, 77, 112-114, 203-204, and Patrick, ITP, 278-279, 367-369.

[2] Abbreviated in the bibliography as SF.

[3] References will be made to particular articles in this work and not to the work as a whole.

view. Beyond these two works, substance is treated more or less incidentally.

Histories of substance in addition to the ordinary manuals for the history of philosophy, exist, to be sure, in abundance. Cassirer,[1] Lindsay,[2] and G. E. Moore[3] provide excellent historical studies of the doctrine. Mabbott presents important material bearing on the history of substance in his attempt to restrict the term to the meaning given it by Aristotle.[4]

The primary sources for this investigation are, of course, the writings of the neo-realists themselves. Among these the cooperative volume, which also includes "The Program and First Platform," is of first importance. Perry's Present Philosophical Tendencies, which was published in 1912, the same year as The New Realism, is probably next in significance to the latter volume for in it he criticizes recent philosophical systems from the point of view of the neo-realists and further elaborates the neo-realistic position. This book was written while the cooperative studies

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[1]Art. I.

[2]Art. I.

[3]Art. I.

[4]Art. I.

were being made, and it was "this spirit of fellowship," as Perry says, which justified him in making "an attempt to summarize the central doctrines of a constructive realistic philosophy."[1] Consequently, Present Philosophical Tendencies may be considered representative of the school on many major issues.

Spaulding's book entitled The New Rationalism is doubly significant. In the first place, as indicated above,[2] it represents an effort at cooperation with other members of the school and to some extent may be considered a completion of the neo-realistic position. A second reason why The New Rationalism is a principal source lies in the fact that it contains the most explicit criticisms of substance advanced by any of the realists. As extensive use will be made of this volume as of any other, except the one containing the cooperative studies.

A First Book in Metaphysics, by Marvin, came out in 1912. Thus, it is likewise a representative volume. Holt's book, The Concept of Consciousness, was written by 1908, as he indicates in the preface (p. xiv), though it was not published until 1914. The views contained in it may have

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[1]PPT, 272.

[2]Cf. supra, p. 8.

influenced those developed through cooperative study. The fact that Holt had it finally published indicates that he believed it a contribution to the program of the school. In an article entitled "Response and Cognition," which appeared in the Journal of Philosophy in 1915,[1] Holt repudiated some of the more radical doctrines of the book however. It is probable that this article made his views more acceptable to some other members of the school.

Pitkin, unfortunately, did not develop his views into a system. We are dependent upon his essay in The New Realism,[2] "World Pictures,"[3] and other articles appearing in philosophical journals, which will be referred to below. Montague, in some ways the most conservative realist of the six, supplies important articles in the journals besides his contribution to the cooperative volume. The Ways of Knowing, Belief Unbound, and The Chances of Surviving Death,[4] contain a more systematic treatment of his views. Some of these doctrines diverge noticeably from the main tenets of the school, however.

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[1]Art. II.

[2]"Some Realistic Implications of Biology," pp. 378-467.

[3]Included in Fullerton (Ed.), EHWJ, 195-229.

[4]For the date of publication and further information see the bibliography.

These writings make up the chief sources for the present inquiry, though other books and many more essays by these six realists will be referred to as the argument proceeds. Criticisms of the neo-realistic principles will naturally be drawn from sources of a manifold and diverse nature. While there is important neo-realistic literature from the period between 1901, when Perry's review of Royce's lectures on The World and the Individual appeared,[1] and 1910, the year the platform of the school was published, reference will be made mostly to material that was published about 1910 or afterward. By that date the neo-realistic convictions were more articulate, and the movement was more definitely organized as a school. It is unnecessary to squander attention on opinions that do not represent the mature judgment of the school.

D. THE SCOPE OF THE PROBLEM

While the scope of the problem under consideration has already been intimated, it must be made more explicit. This may be done by stating, first of all, what the problem does not include.

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[1]Art. I. This review may be regarded as the opening shot fired in the neo-realistic attack on idealism, though it has not yet been generally recognized as such. (Cf. Harlow, BGSR, 24, 29.)

The present inquiry is not to be understood either as a systematic exposition or a detailed criticism of the fundamental neo-realistic doctrines. The latter will be discussed only in so far as they have a bearing on the doctrine of substance.

Nor will any interest be manifested in the detailed contradictions and divergences among the views of the six realists. Such discrepancies will receive attention to the extent that they may determine the attitude of the school as a whole toward the concept of substance, but not beyond. Many of these divergences have been previously investigated by others, and hence they require no further study here.

Again, the complete pattern for a normative doctrine of substance will not be sought, in case the neo-realistic strictures on the concept turn out to be invalid. It is intended merely to inquire whether the neo-realistic polemic has made it impossible to hold the concept longer. The implications of a normative doctrine of substance would themselves compose a further problem.

It is quite clear that such external questions as the genesis of neo-realism, its relation to critical realism, the reaction against idealism, and its present vitality or lack of it, are totally irrelevant to the main problem.

More positively defined, the field of study may be said

to lie within one aspect of the philosophic views held by a group of realists who represent a larger school, but whose convictions on substance typify the definite movement in American thought to deny that this concept has an intelligible meaning or function. It is the sole province of this work to examine the validity of that denial.

E. METHOD OF PROCEDURE

Considerable difficulty has been experienced in selecting the proper method of procedure. It would seem, on first thought, that the simplest method would be to consider separately and in order the explicit and the implicit objections of neo-realists to substance. There are serious obstacles standing in the way of such a method, however.

The first difficulty is that most neo-realists, with the notable exception of Spaulding, do not present systematic and explicit criticisms in a thorough-going way.[1] Marvin, it is true, sets up formal objections to substance,[2] but he does not develop them. For the most part he presupposes that substance no longer plays a role in philosophy. With the other four, the criticisms are generally im-

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[1] Cf. Spaulding, NR, 25-29, 30, 40-42, 177-178, et passim.

[2] FBM, 174-175, 178, 185, cf. Art. II, 51n.

plicit.[1] It would be unprofitable to consider Spaulding's criticisms separately, unless it could be shown that each of them represents fairly adequately the opinions of the other five. But this could be done only by considering the implicit arguments against substance held by the others. Such a plan would mean intermingling the explicit and the implicit arguments.

A second barrier in the way of considering the explicit arguments separately is the fact that each of the six, Spaulding included,[2] blends the formal with the informal or implicit criticisms. Specific criticisms are closely knit with constructive arguments for the neo-realists' own systems and they depend for their cogency upon the establishment of realistic theories. Consequently, to pluck them from their setting would result in undue abstraction.

Yet a third and even more weighty argument against considering the formal criticisms separately consists in the fact that, broadly speaking, they can all be reduced to one fundamental criticism, and this one depends for its

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[1]Perry formally criticizes substance in an article that appeared in 1928 (cf. Art. XII), but previous to that time he had for the most part assumed the invalidity of the concept. Hasan rightly observes that American neo-realists largely presuppose the thesis that "there is no substance." (ROR, 166.)

[2]Cf. the criticisms by Spaulding cited above, p. 17.

force upon the demonstration of a constructive argument. In a sense, the specific criticisms turn on the validity of analysis as a final method of explanation. Typical explicit criticisms, such as the following, are all phases of the one contention that substance can be dissolved by complete analysis.

The fallacy of pseudo-simplicity, condemned by the realists,[1] is a case of incomplete analysis. Marvin's belief that "the hypothesis [of substance] explains nothing,"[2] since it gives no reason for change[3] and since the thing is only its properties,[4] results from his conviction that substance is a mist that is dissolved by the sunlight of analysis. Spaulding's claim that substance is a result of the naive and uncritical fashioning of thought about physical things,[5] rests on the belief that the knowing relation has not been completely analyzed. The argument that substance has been wrongly harbored by the theory of internal relations,[6] arises from the belief that the truth about any ob-

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[1]Holt et al., NR, 12-14.

[2]FBM, 178.

[3]Ibid., 185.

[4]Ibid., 174. Cf. Perry, Art. IV, 103.

[5]NR, 29, et passim.

[6]Ibid., 40-42, 177-178, 37-38, 213.

ject lies in the simple entities to which analysis can and does reduce it. The rejection of substance because, even if its nature were known, it would not explain all objects,[1] rests upon the belief that analysis terminates in entities that are adequate for the explanation of all objects and situations.

Since the specific arguments of the realists against substance reduce to the contention that the latter represents incomplete analysis, and hence incomplete truth about the object to which it is ascribed, the genuine significance of the realistic critique could be appreciated only after the method of analysis had been carefully scrutinized, and after its application to specific objects had been taken into account. Such a task would plunge one immediately into the internal or implicit arguments against substance.

It seems proper, consequently, to treat the problem of this dissertation primarily from the standpoint of realism's internal or implicit criticisms of substance. The external or explicit criticisms of substance will be treated in connection with, and as introductions to the former. But realism's fundamental arguments against substance are implicit in the arguments for its own views.

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[1]Marvin, FBM, 174-175. Cf. Spaulding, NR, 173-174, 156-158.

In answer to the possible objection that this method will require one to consider most of the major issues in neo-realism, it may be pointed out that this would be necessary so far as they concern substance with any method that might be chosen. The context in which specific criticisms occur, and their significance for the rest of the neo-realistic system, would have to be explained in any case. A second difficulty with this method is that the measure of agreement attainable among the six realists on these major issues is, in some cases, relatively slight. And, it may be further objected, the completeness with which each of the six discusses fundamental issues, varies widely. But the problem of diversity among the views of the six would be encountered with equal seriousness, regardless of the method followed.

Because of the diversities among the views held by these six neo-realists a possible third method has some merits. Each of the six realists might be studied separately so far as their views are relevant to the doctrine of substance. This method would probably lead more than any other to exhaustive information about the fate of substance at the hands of individual neo-realists. In order, however, that results which represent the position of the whole school might be obtained, it would still be necessary to make a comparison of the results obtained from a study

of each realist. Such a plan would make the dissertation unduly long.

The second method appears to involve fewer difficulties than the others and to combine brevity with thoroughness, as well as to provide as much directness as is possible in so complex a problem, and is therefore adopted. The remainder of the dissertation divides itself naturally into seven chapters.

In order to understand clearly the concept that is criticized by the neo-realists, a brief history of the doctrine must first be presented. Perry points out that traditional realism has been "confused and compromised by an alliance with substantialism,"[1] and Spaulding shows that the kinds of systems which his own opposes are the "substance-philosophies" and the "causation-philosophies."[2] Chapter II will be devoted to the role which substance has played in the history of thought.

The chief sources for the dispute about substance are to be found, as pointed out above, in recent scientific developments, and especially among those in the field of physics. A brief consideration of the more important recent developments in the scientific realm will show more

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[1]Art. IV, 103.

[2]NR, 9-10.

clearly the present acuteness of the problem under consideration. Chapter III is designed to serve this purpose.

Since the whole neo-realistic attack upon substance, as well as much of realism's own constructive argument, depends upon the validity of the analytic method, the first chapter dealing directly with the neo-realist criticisms will be concerned with this method. The significance of analysis for the problem of substance is treated in chapter IV.[1]

There is no material substance, according to these neo-realists. Physical objects can be reduced without residue to relations. The fundamental elements of matter are simple and neutral in quality. Whether this is true, constitutes the problem in chapter V.

That mind is no substantial entity or "receptacle" most neo-realists are persuaded. The problem of mind or consciousness has received more attention by the realists than any other, but as to what mind actually is, there is less agreement than on many other issues. Chapter VI is devoted to the question of whether mind is a substance.

Substance is also denied as an ultimate principle in ontology. Being, both in its subsistent and existent phases,

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[1]Further justification for this organization into chapters will be presented as the argument advances.

involves no substance. Rather must it be thought of as a complex system of terms in relation. The validity of this interpretation will be considered in chapter VII.

Chapter VIII, the final one, will embody the conclusions and summary of the entire dissertation.

The historical usage of the term substance may now be examined.

CHAPTER II

SUBSTANCE IN THE HISTORY OF THOUGHT

Two reasons for considering the role which substance has played in the history of thought grow out of the problem of this dissertation. One is that the precise nature of the concept rejected by the neo-realists must be known in order to evaluate criticisms of it. A second is that realism itself has been traditionally associated with the doctrine.[1] The rejection of substance by the new realists is more remarkable since the older realistic tradition held firmly to the concept. A brief survey showing only the most important functions substance has performed in the philosophic tradition is, therefore, next in order.

A. THE PERIOD BEFORE ARISTOTLE

Regardless of whether the motive behind early Ionian thought was theological[2] or scientific in a purely secular

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[1] Perry, Art. IV, 99-100.

[2] This is Hack's thesis in GGP. Note especially pp. vi, 144, 145, 147.

sense,[1] "it is the concept of substance which historically marks the line of distinction between investigation and myth."[2] The earliest Greek philosophy that was worthy of the name dealt with the everlasting something that underlies all things. "The first philosophers," says Aristotle, held that the being "of which all things that are consist[s]," was a "substratum" which "remains," and "nothing else comes to be or ceases to be. . . ."[3] The "beginning" of things, i. e. the ἀρχή,[4] was substance for the early Greeks.[5]

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[1]Burnet (EGP, 13-15) believes Ionian science was secular since it had made a complete break with Aegean religion. Even where the term "God" (θεός) is used it is without a religious significance, he asserts. The point is that no matter what quality was ascribed to ultimate being, or what motive led to it, some kind of substance was believed in even from the first.

[2]Cassirer, SF, 151. "Philosophy dates her origin," says Weber, from the time when these early philosophers "relegated the traditional gods to the domain of fable, and explained nature by principles and causes" (Weber and Perry, HOP, 8). These "principles" and "causes" were substances, or were dependent upon them.

[3]Met. A, 983b 6, 7, 15, 16.

[4]Burnet (ibid., 10-12) points out that the term ἀρχή is Aristotle's word for the first substance, and that it does not appear in any of the genuine writings remaining from the other earlier Greeks. He believes that among earlier thinkers Φύσις was the more common term for ultimate being. This is also Cassirer's view (Art. I, 500).

[5]Even if ἀρχή were not used before Aristotle to indicate ultimate being, the reality in question was believed to be an Urstoff that was permanent and seemingly more real than the elements that changed. It also had affinity with the concept of cause. (Cf. G. E. Moore, Art. I, 612-613.)

Substance[1] for the Ionian physicists was "material cause."[2] Thales (c. 625-547 B. C.) taught that there was but one first principle or substratum and that it was water.[3] The principle of the ἄπειρον embraced by Anaximander (c. 610-547 B. C.) contains the suggestion that the source of sensuous being cannot have the same properties that this sensuous being itself has. Theophrastus, who may have known Anaximander's περὶ φύσεως, reports that the infinite and eternal atmosphere was for Anaximander a homogeneous structure in which such opposites as the warm and the cold, the wet and dry lie together unseparated, but from which they arise.[4] Anaximines ("flourished" sometime between 585/4 and 528/24 B. C.) made "air prior to water, and the most primary of the simple bodies. . . ."[5] Air, the generative principle of things, is in continual motion of condensation or rarefaction.[6] This accounts for the differ-

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[1]The term "substance" was not clearly defined before Aristotle. The reality referred to by ἀρχή or φύσις is here meant.

[2]Aristotle, Met. A, 984a 17.

[3]Ibid., 983b 21, 984a 3, 28.

[4]Quoted by Burnet, EGP, 52-53. Cf. Cassirer, SF, 151.

[5]Aristotle, ibid., 984a 5.

[6]Cf. Burnet, ibid., 73, for selections from a monograph written by Theophrastus on Anaximines.

ences between particular things, though they are constituted by the same substance.

While these early interpretations of reality involved belief in some kind of substratum, the relation in which the underlying substances stood to their changing forms was not elaborated. This relationship was a problem that received adequate attention only at a much later time.[1] Plato sought expressly to define it.

In the next phase of Greek philosophy the materialistic determinations of substance advocated by the Milesians were superseded by more ideal conceptions. For the Pythagoreans and Heraclitus the permanent element in being consisted "not in an unchangeable material substratum, but in certain constant proportions which persist in all Becoming."[2] According to the Pythagoreans[3] "number was the substance of all things."[4] Number accounts for the connection and inner harmony of things giving them their definite character. Pro-

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[1] G. E. Moore, Art. I, 612.

[2] Cassirer, Art. I, 500.

[3] Little is actually known about the life and character of Pythagoras. It is established that he "flourished" about the year 532 B. C., but the dates of his birth and death are unknown. The figure of Pythagoras was soon submerged in the tradition of "Pythagoreanism."

[4] Aristotle, Met., 987a 19, cf. 985b 34, 986a 16, 17.

[illegible]

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portion and measurement are principles determining the nature of becoming.[1] Heraclitus (c. 544-484 B. C.) found the determination of things in an immanent law, or λόγος which governs events and retains them within limits.[2] Everything proceeds from a dry and warm principle and eventually returns to it,[3] yet all is flux.[4] Nothing is immutable in this eternal process except the Law which governs it. The "form" of things is the λόγος.

This logical view of substance which had its rise in Heraclitus and the Pythagoreans was developed further by Parmenides (c. 540-470 B. C.) and the Eleatic school. Parmenides believed that thinking and being are one.[5] Thought occurs within being. The latter is determined by attributes ascribed to it by the former. Being is the immutable, indivisible, and eternal substance grasped by thought.[6] Belief that there is something beyond being is illusory.

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[1] "Of the opinions of Pythagoras we know even less than of his life," says Burnet (EGP, 92). Information about Pythagoreanism is gathered from diverse secondary sources (Cf. Burnet, ibid., 93-112).

[2] Frs. 2, 114, 115 (Diels, FVS, I, 77, 99, 100).

[3] Frs. 30, 31, 51 (Diels, ibid., 84, 87).

[4] Frs. 53, 58, 59, 60 (Diels, ibid., 88-89).

[5] Fr. 8 (Diels, ibid., 157).

[6] Cf. Cassirer, Art. I, 500.

A third attitude toward substance in the pre-Aristotelian period is represented by Empedocles (c. 495-435 B. C.), Anaxagoras (500-428 B. C.), and Democritus (c. 460-370 B. C.). In a sense these three were able to reconcile the Ionian interpretation of reality with the more idealistic views of Heraclitus, the Pythagoreans, and Parmenides. Their conclusion was that there are certain elements within nature which produce by their mutual relationships the diversity and change in reality but which are themselves incapable of change.[1]

Democritus' views of the ultimate substance became especially important. Substantiality he attributed to the atoms. They were held to be infinite in number, simple in nature, and indestructible. The manifold of sense phenomena results from the differences in position, shape, arrangement and spatial motion among the atoms and hence it has only secondary Being. Genuine Being belongs only to the atoms and empty space, the latter being necessary for their motion.[2]

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[1]Empedocles held that the four elements, air, earth, fire and water, form particular things through mixture and separation according to the two principles of Love and Hate. (Frs. 8, 9, 17, 20, 21 (Diels, FVS, 226-227, 229-233).) Anaxagoras believed there were innumerable elements (σπέρματα) of peculiar composition which were brought into combination and separation by the eternal mind (νοῦς). (Frs. 1, 4, 6, 9, 12, 13, 14 (Diels, ibid., 399, 400, 402-406).)

[2]Frs. 125, 156, 164, 167 (Diels, ibid., II, 85, 91, 93, 94).

With Plato (427-347 B. C.) a marked change in the concept of substantiality appears. It is form and not matter which determines the substance of things, according to Plato. The idea or form alone has genuine and constant being, while sense phenomena "become" and never "are."[1] They owe what being they may possess to their participation in the ideas.[2] These ideas[3] are eternal forms[4] within the intelligible world which produce "copies"[5] in the phenomenal world. They impress themselves upon an eternally given matter,[6] the metaphysical status of which is not quite clear.[7]

The extent to which the ideas or forms of Plato are integrated in one system is disputed among the interpreters of his works. There is at least some connection between them, however, and they bear a special relation to the idea of the

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[1] Tim., 28A.

[2] Phaed., 100D.

[3] Plato uses both the terms εἶδος and ἰδέα, though the former appears more frequently. Cf., Phaed., 74C, Rep., X, 596A.

[4] Symp., 211B, Phaed., 100B.

[5] Phaedr., 250B, Tim., 52C.

[6] Tim., 50C-52C.

[7] Tim., 51AB. If the status of matter were more clear, the relation of the intelligible to the phenomenal world would also be more understandable.

good.[1] "The Deity" or "Creator" works through these ideas to bring about certain phenomenal occurrences.[2] Aristotle rightly complained that the poetic language of Plato obscured the precise relation between particular things and their forms.[3] He did not, however, succeed in establishing adequate ground for his chief criticism of Plato, namely, that the forms were external to "the particulars which share in them. . . ."[4] Some of Plato's language does indicate such a dualism, but elsewhere and particularly in the Timaeus,[5] which represents his more mature thought, he refers to the presence of forms in matter. It is from the interpretation and criticism of Plato's views that Aristotle developed his own doctrine of substance.

B. ARISTOTLE

The history of substance as an object of definition begins with Aristotle (384-322). Some of his interpreters are content to emphasize only two senses in which he used the

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[1] Cf. Symp., 201C, Rep., VI, 506A, 509B, VII, 517C, 518D.

[2] Tim., 30E, 31A.

[3] Met., A, 991a 21.

[4] Ibid., 991a 14.

[5] Cf. 50C-51B.

term substance (ὑποκείμενον).[1] There is considerable evidence, however, for three uses which he made of the concept, one of which is logical and two metaphysical. He states explicitly that "there are three kinds of substance—the matter. . . ; the nature [form]. . . ; and again thirdly, the particular substance which is composed of these two. . . ."[2] A brief consideration of these three phases of substance follows.

In the first place, substance means for Aristotle the material substratum (ὑποκειμένη ὕλη), or material cause.[3] One of the two causes to which the original four reduce,[4] is the material. Matter, the potentiality from which all actual things except God arise,[5] is substratum[6] and substratum is

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[1]Cassirer (Art. I, 500) and Geiger (Art. I, 272) believe Aristotle used the term to refer to individual things ("first substances") and to universal qualities ("substances of the second degree"). Ross seems to restrict Aristotle's use of the term to the substratum in which qualities inhere (cf. ARI, 166), while Mabbott asserts that substance in the first sense emphasized here by Cassirer and Geiger is the main element in Aristotle's view (cf. Art. I, 186).

[2]Met., Λ, 1070a 9-12, cf. Z, 1035a 1-3, H, 1043a 27-28.

[3]Ibid., H, 1042a 26-27, Δ, 1022a 18-19.

[4]Formal, efficient, and final cause are the same. Cf. Phys., ii, 198a, 26.

[5]Met., especially Bk. Θ, 1045b 36ff, H, 1042b 9, 10.

[6]Ibid., Z, 1029a 3, A, 983a 30, Δ, 1024b 9.

substance.[1] It is the material substratum that has the properties possessed by the ἀρχαί of the early Greeks.[2] God is pure actuality, eternal and the "unmoved mover," who lacks nothing.[3] Matter, along with form, is eternally given[4] and is never found apart from form, though form in its purest state may exist apart from matter.[5]

Aristotle used the term substance, secondly, as synonymous with essence or form. Formal cause is essence and essence means substance.[6] Essence or form and matter exist together, the latter being that from which a thing is generated, and the former "that which the matter is at any time coming to be. . . ."[7] Substance as form or essence means the true "nature" of things.[8] It is the "universal" and the "genus" of "each thing,"[9] yet it exists only in these par-

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[1] Met., Z, 1028b 35, Δ, 1017b 23.

[2] G. E. Moore, Art. I, 613.

[3] Met., Λ, 1072a 24, b 29, 1074b 26.

[4] Ibid., 1069b 35.

[5] Ibid., 1073a 4.

[6] Ibid., A, 983a 27, 988a 34, Δ, 1013a 27, Z, 1038b 5.

[7] Ibid., B, 999b 13.

[8] Ibid., Δ, 1015a 12-14, 10, 1017b 22, 25.

[9] Ibid., Z, 1028b 33, 34, 1038b 17-23, 1040b 26.

ticular things. Form is actuality.[1]

It was the third meaning of the term, namely the logical, that was most significant for subsequent thought, especially that during the Middle Ages. Substance is the subject of predication, but it cannot be predicated of anything else.[2] As logical subject it is a complex, constituted by the union of essence or form with ὕλη.[3] To this complex Aristotle ascribes individuality. It is the "first substance" (πρώτη ουσία).[4] The qualities and attributes of subjects are "substances of the second degree" (δεύτεραι οὐσίαι). They do not have "being in the full sense, but are qualities and movements of it. . . ."[5] While they do not exist apart from individual things, i. e. the first substances,[6] they are the determinations without which the individual things could not be thought.[7] Such changes as those of quality, quantity, and location occur, but their subject persists.[8]

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[1] H, 1043a 27, 1050a 17, 1051b 31.

[2] Δ, 1017b 13-15, Z, 1028b 35-36.

[3] Λ, 1070a 12, Z, 1035a 2, H, 1043a 28.

[4] Z, 1028a 30, 1037b 3.

[5] Λ, 1069a 21-23.

[6] Cf., supra, p. 34n9.

[7] Z, 1028a 15-30.

[8] Λ, 1069b 6, 8, 9.

There is a confusion here which Aristotle does not dispel. The trend of his logical thought seems to be that the subject is the whole complex individual thing.[1] On the other hand, subject is that Something in which attributes inhere. This would seem to imply that the ultimate subject is the matter which is determined by form, but Aristotle does not say so explicitly.[2]

Thus for Aristotle the ὑποκείμενον of the universe consists of the two elements, form and matter. In an individual thing these two elements are found in such a combination as to distinguish it from other things. For purposes of logic, substance is that something to which predicates may be ascribed, but which cannot itself be a predicate of anything else.

If this interpretation of Aristotle is allowed, Spaulding's thesis that the whole Metaphysics is "couched in terms of the particular thing"[3] appears to be an exaggeration. In the first place, Aristotle discusses the metaphysical aspects of substance even more than he does the logical. It should be noted, secondly, that the mainspring of Aristotle's

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[1]Cf. supra, p. 35n3.

[2]G. E. Moore points out this difficulty (Art. I, 613).

[3]NR, 30n, 31.

thought came chiefly from Plato. The model for Plato's thought was ideas, not physical things. One of Aristotle's most important objectives was to show that the eternal forms do not exist external to matter, as he believed Plato had held.[1] Here is the motif for his theory that matter and form are eternally coexistent in all things save in God. It is true that Aristotle's thought played a dominant role in succeeding centuries, but it is scarcely justifiable to hold that the entire history of philosophy has been "thingized" by the Aristotelian tradition.[2]

C. SCHOLASTICISM AND THE MIDDLE AGES

Original thought about substance did not appear again until the time of the Scholastics, though the term was used in frequent and important senses during the intervening centuries.

Neo-Platonism, a ". . . syncretism . . . of the different systems of Grecian philosophy"[3] bearing traces of Philo, Neo-Pythagoreanism, Stoicism, and Aristotelianism, received its clearest statement from Plotinus (204-270). According

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[1]This summarizes Aristotle's criticisms of Plato. Cf. Met., A, ch. 9.

[2]Spaulding, NR, xvii. Cf. Leighton, MAC, 187n.

[3]De Wulf, HMP, 75. Cf. Whittaker, NP, xi, x.

to him particular things are emanations of the infinite and substantial One (ἄπειρον).[1] God, the supreme form, manifests or differentiates himself in three stages of increasing imperfection, namely, intelligence, soul, and body or matter.[2] Each stage contains both form and matter, with the latter predominating in proportion to the stage of imperfection.[3]

In the literature of the Patristics the term ὑπόστασις (the equivalent of the Latin substantia) denotes "the complete definition of an individual. . . ,"[4] thus carrying to its logical conclusion the Aristotelian conception of a complex and ultimate subject. It was used to designate the persons of the trinity.[5] The term οὐσία also figured largely in Christological disputes.[6] Augustine (354-430) employs the

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[1]Enneads, V, sec. 2, 493, sec. 4, 517, sec. 1, 487, 488 (Bakewell, SAP, 371-373), VI, 9, sec. 6, 763E (Bakewell, ibid., 368-369).

[2]Ibid., V, 9, sec. 4, 557E (Bakewell, ibid., 353-354), IV, 7, sec. 8 (Bakewell, ibid., 345-347), V, sec. 2, 494 (Bakewell, ibid., 373-374).

[3]Ibid., II, 4, sec. 6, 162C, sec. 13, 167 (Bakewell, ibid., 378-382).

[4]G. E. Moore, Art. I, 613.

[5]Origen, De Principiis, I, 2:2 (Ayer, SACH, 193), Socrates, Hist. Ec., I, 8 (Ayer, ibid., 306).

[6]Tomus ad Antiochenos (Ayer, ibid., 349-352).

theory of matter and form to account for the dual constitution of corporeal substances,[1] though some passages in his writings indicate that he believed matter to be a chaotic mass brought forth from nothing by the Creator.[2]

While the Scholastics had much to say about the term substantia their contribution, excepting that of Boethius, consisted chiefly in elaborating and clarifying the doctrines of earlier thinkers, and in particular those of Aristotle. Boethius (470-525), however, was regarded by many of his contemporaries as the superior of Aristotle. His translations and commentaries served as the chief source of Aristotelianism down to the end of the twelfth century, and some of his original treatises supplied the place of unknown portions of Aristotle.[3] There were three important problems in which the nature of substance was an issue, viz., the status of universals, the relation of mind and body, and the principle of individuation.

The controversy between realism and nominalism marked the reappearance of the Platonic-Aristotelian problem con-

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[1] Confessiones, XII, 3, 4, 6, 25. Cf. De Quantitate Animae, XIII, 22.

[2] Ibid., XII, 7, 8, 11, XIII, 2, 3.

[3] De Wulf, HMP, 145. Abelard's discussion of Boethius (Glosses, in McKeon, SMP, I, 208-258) makes Boethius' influence plain.

cerning the status of universals. Porphyry (c. 230-300), a Neo-Platonist, had formulated the problem in his introduction to Aristotle's De Categoriis, a work later translated by Boethius.[1] For realism, which was represented chiefly by John Scotus Erigena (c. 810-880),[2] Anselm of Canterbury (1033-1109),[3] William of Champeaux (1070-1120),[4] Bernard of Chartres (first half of twelfth century),[5] and Walter of Mortagne (d. 1174),[6] universals were the producing and determining substances and were ante rem. They were definite and independent realities individualizing themselves in species and concrete particulars. Nominalism, represented chiefly by Roscellinus (flourished towards end of eleventh century), required one to hold that only individual things are truly real. Universals are merely names or words (voces), and these are human designations for elements in

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[1] Isagoge of Porphyry. Cf. Boethius' In Isagogen Porphyrii Commenta (McKeon, SMP, I, especially, 77-81, 209).

[2] De Divisione Naturae, IV, 8, 9 (McKeon, ibid., I, 125-130, 135-138).

[3] Monologium, 27, 25, 26.

[4] De Generibus et Speciebus (De Wulf, HMP, 179).

[5] De Expositione Porphyrii (De Wulf, ibid., 181-182).

[6] Cf. John of Salisbury, Metalogicus, II, 17 (De Wulf, ibid., 188).

individual substances.[1] They are post rem for the nominalist, according to Abelard's later formulation. The trinity turns out to be three substances (i. e. tritheism).[2]

Mediating theories between these extremes were soon put forth. Adélard of Bath (late in eleventh century) taught that universals are the "indifferent" or super-individual elements in particular things.[3] Abelard's (1079-1142) "conceptualism," according to which universals are the indispensable means or qualities by which the intellect conceives objects,[4] brought temporary cessation in the debate. His solution of the problem was acceptable in the main to the Arabian philosophers.[5] A modified nominalism held the center of thought in the following periods of the Middle Ages.

A second problem in scholastic thought which involved the concept of substance was that concerning the nature of the soul and its relation to the body. The mystics, particu-

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[1]John of Salisbury, Metalogicus, II, 17 (De Wulf, HMP, 159).

[2]Letter of St. Anselm to Fulco (De Wulf, ibid., 175).

[3]De Eodem et Diverso (De Wulf, ibid., 187).

[4]Glosses on Aristotle, Porphyry, and Boethius (McKeon, SMP, I, 219, 222, 234, 235, 237, 254).

[5]Avicenna held that universals were "ante multiplicitatem, in multiplicitate, et post multiplicitatem" (Windelband, HOP, 299).

larly Hugo (1096-1141) and Richard (d. 1173) of St. Victor, continued the Augustinian tradition that soul and body are two different substances.[1] Such dualism is to some extent overcome by Aquinas (1225-1274) in his theory that the soul or substantial form of the body gives the latter its actual existence and constitutes the formal principle of all its activities,[2] but this is scarcely more than a reaffirmation of the mutual dependence of form and matter enunciated by Aristotle, and is still dualistic. John of Salisbury (d. 1180) taught that there is some relation between the sensations and perceptions which enter into the mind.[3] A substantial soul was not asserted, but the status of universals or concepts, a problem inherited from the controversy between realists and nominalists, was further elaborated. Moderate realism was his conclusion.[4]

The third problem which concerned substance was that of individuality (<u>principium individuationis</u>). The Arabians, represented by Averroës (1126-1198), argued that matter bearing living forms is self-subsistent, and that the <u>active in-</u>

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[1]De Wulf, HMP, 216-218.

[2]<u>Sum. Theol.</u>, I, 75, Art. 5 (Ans. 3, 4), Art. 7(3), Art. 4(2), 76, Art. 4 (Ans.), <u>Cont. Gent.</u>, II, 56, 54.

[3]<u>Metalogicus</u>, IV, 15, 16, 20, 32 (De Wulf, ibid., 201).

[4]Ibid., II, 20 (De Wulf, loc. cit.).

tellect is an eternal form that may exist apart from the individual man except during the act of knowing. In the latter case there is an accidental union of the two.[1] Duns Scotus (1270-1308) held that the soul is individualized as an original fact, i. e. even apart from its relation to the body. What is "proper to all members of any species," i. e. their universality, "follows from the specific nature," or definite and individual form, of each.[2] William of Occam (d. 1347) followed Scotus in emphasizing the reality of individuals or original forms. Universals are products of comparative thought. They are "signs" in the mind designating common characteristics of different objects.[3] Aquinas found the principle of individuality in the capacity of matter to assume quantitative differences.[4] Nicolaus Cusanus (1401-1464) maintained that there was a certain element of universality in each individual. Every individual in a sense mirrors the universe.[5]

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[1] Cf. Commentary on De Anima, iii (De Wulf, HMP, 235, 234).

[2] Commentaria Oxoniensia, Bk. I, Dist. 3, Quest. 4, Art. 2 (McKeon, SMP, II, 322), Art. 6 (McKeon, ibid., 349-350), cf. preliminary discussion of the question (McKeon, ibid., 319, 314).

[3] Quodlibeta, I, Quest. 13 (McKeon, ibid., 360-361, 365).

[4] Sum. Theol., I, 75, Art. 4 (Ans.), Art. 5 (Ans. 2), 3, Art. 7 (Ans.), III, 77, Art. 2 (Ans. 2).

[5] Docta Ignorantia, III, 4 (cf. De Wulf, ibid., 457-458).

The classic formulation for the doctrine of substance among the Scholastics was given by Aquinas. His predecessors had elaborated the categories of the accidents, especially those of quality, quantity, relation, time, and space. The most important problem concerned the relation of substance and accidents. Aquinas advocated the doctrine of a real distinction between the faculties and the substance of which they are qualities,[1] though he argued that the latter are *in re*.[2] A substance was held to be a thing whose nature is not to exist in another, while an accident was considered a thing whose nature is to exist in another.[3] Just how the substance sustains or supports its accidents was not further explained by Aquinas.

In Scholasticism *substantia* and *essentia* are frequently employed as synonymous terms,[4] though in their more proper usages the former refers to the subject and the latter to its attributes, or accidents. However abstract the scholastic disputations over the relation between these two aspects of

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[1] *Sum. Theol.*, I, 3, Art. 3 (Ans.), 85, Art. 5 (Reply 3), 84, Art. 1 (Reply 3).

[2] Ibid., I, 84, Art. 1 (Ans). ". . . Separate substances are subsistent quiddities" (*Cont. Gent.* II, 93).

[3] *Cont. Gent.*, I, 25, *Sum. Theol.*, III, 77, Art. 1 (Obj. 2), I, 54, Art. 3 (Obj. 2).

[4] *Sum. Theol.*, I, 29, Art. 2 (Ans.), 3, Art. 3 (Ans.).

being may have become, two empirical facts stood out clearly. The first was that the world as found is differentiated into various beings or substances, each of which is relatively independent of the others. The second consisted in the observation that there are qualities, relations, and the like, which exist not alone, but as belonging to the substances and as needing them for their support.[1] The problem of how these accidents are "supported" was bequeathed to modern thought.

D. CONTINENTAL RATIONALISM

The reign of Aristotelianism which had been so prominent during the Middle Ages was largely terminated by the scientific developments in the sixteenth and seventeenth centuries. After the establishment of the heliocentric system by Copernicus and Kepler, and the acceptance of the Galilean theories on dynamics, the concept of substance resembled more nearly the pre-Aristotelian doctrines of the Pythagoreans and of Democritus. Substance was reckoned as the unchanging magnitude within the transformations of phenomena.[2]

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[1]Royce, Art. I, 634.

[2]Cassirer, Art. I, 500-501.

Descartes (1596-1650) believed that the magnitude of motion in the world remains constant. The world of bodies is completely closed in itself and admits of no interference from the outside. "Causality" takes place in the realm of extension according to mechanical law. But true substance, that which "exists in such a way as to stand in need of nothing beyond itself in order to its existence,"[1] is God. Matter is one of the two other kinds of entities which may be called by this "common concept," even though they are "created substances," and hence not substances in the truest sense.[2] These secondary substances are mind and body, whose "principal attributes" are respectively thought (cogitatio) and extension (extensio).[3] The chief problem became that of determining how these two widely differing realities could enter into that relationship which exists between the soul and body of man.

The Occasionalists took up the problem of the relation between thinking and extended substances and concluded that their "apparent" interaction can be explained only by the mediation of God. God intervenes "on occasion" of each vo-

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[1] Principles, I, 51.

[2] Ibid., I, 52.

[3] Ibid., I, 53, 54.

lition to excite in the body the proper movement, or "on occasion" of corporeal action to produce the corresponding perception in the soul.[1] Since God is the efficient cause of all perceptions and movements in human subjects, the latter are really only modes of the former. Geulincx (1625-1669) held that God acts in human beings,[2] and Malebranche (1638-1715) that God thinks in them.[3]

For Spinoza (1632-1677) substance is the one concrete whole of reality.[4] It is causa sui, "id quod in se est et per se concipitur,"[5] and is identified with God. It is both the natura naturans and the natura naturata of the Scholastics. There are infinite attributes of the one substance,[6] though only two of them are known, thought and extension.[7]

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[1]Weber and Perry, HOP, 256.

[2]Metaphysica, V, 194-195 (Nagel, SPAG, 54).

[3]Weber and Perry, loc. cit.

[4]Some interpreters condemn Spinoza (cf. Windelband, GNP, I, 218-219, Caird, SPI, 134, and Fischer, GNP, II, 359-360) for the abstractness of his concept of reality. Since, however, what concreteness there is must be in reality, and since substance is all of reality, substance is so far concrete.

[5]Ethics, I, def. 3.

[6]Ibid., I, def. 6.

[7]Spinoza discusses only these two, pointing out that substance is comprehended "now under this and now under that" attribute, though both are "the same substance" (ibid., II, prop. 7, schol.). He admitted that only these two are known in one of his letters (LXIV, Van Vloten edition).

Particular things are modes of substance, deriving their reality from the latter.[1] They are of two kinds, corresponding to the two kinds of attributes. Knowledge is possible because there is a complete parallelism between the two kinds of modes.[2] Mind and body are concrete examples of this fact.

Leibniz (1646-1716) held that substance is spiritual force.[3] Matter cannot be ultimate, for it is infinitely divisible. Even motion, which had been regarded as a form of extension, is not as real as the force or cause of this motion.[4] The true reality of things, their substantial form, rests in such a unity as is found only in a soul or "I."[5] There are many substances or monads besides the supreme monad, God. Each created monad depends upon God,[6] but is completely separate from the others,[7] although they all stand in a preestablished harmony.[8] Substances differ in the degree

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[1] Ethics, I, def. 5.

[2] "Ordo et connexio idearum idem est, ac ordo et connexio rerum," says Spinoza (ibid., II, prop. 7).

[3] New System (Cassirer, LPW, II, 260).

[4] Discourse, 18.

[5] New System (Cassirer, LPW, II, 265), Discourse, 12.

[6] Discourse, 32, Monadology, 47.

[7] Discourse, 14, Monadology, 7, 9, New System (Cassirer, ibid., 266).

[8] Concerning Preestablished Harmony (Cassirer, ibid., 273), New System (Cassirer, ibid., 268-269).

of their intelligence, some being rational, others merely sentient but incapable of conscious reflection, and some purely simple.[1] The monads are logical subjects from which all their present and future predicates may be deduced.[2] Movement and change are shifting circumstances of one remaining fact.[3] This problem of identity in change forms one of the major issues regarding substance in modern thought.

The continental rationalists considered substance primarily from a metaphysical standpoint, but the British empiricists were more interested in its epistemological significance.

E. BRITISH EMPIRICISM

In British empiricism substance appears as a "category" in which experience is ordered.

Locke (1632-1704) believed that knowledge arises only from sensations or "ideas."[4] These may be simple[5] or com-

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[1] Monadology, 19, 20, 21, 22, 23, 24, 25, 82, 83.

[2] Letter to de Volder (Cassirer, LPW, II, 340), Discourse, 8, Letter to Arnauld (Cassirer, ibid., 202-203).

[3] Letter to de Volder (Cassirer, ibid., 292, Monadology, 12, 13.

[4] The term "idea" stands for "whatever is the object of the understanding when a man thinks. . . ." (Essay, bk. I, ch. i, 8).

[5] Ibid., bk. II, ch. i, 24, 25, ch. ii, 1, 2.

plex,[1] the latter being the result when the understanding orders the former into certain modes.[2] Substance is such a mode of connection but it is not a new reality supplied by the mind.[3] ". . . Substances are such combinations of simple ideas as are taken to represent distinct particular things. . . ."[4] The simple ideas delivered by sense are ascribed to a substance or substratum ". . . though it be certain we have no clear or distinct idea of that thing we suppose a support."[5] The traditional formula of substance and accidents is "of little use in philosophy."[6]

While the substratum of things is unknown, there is a "real essence" which is "the foundation of all those qualities which are the ingredients of our complex idea. . . ."[7] Dewey believes it can be shown that Locke intended both primary and secondary qualities to be construed as dependent upon the object,[8] whereas the usual interpretation is that this

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[1] Essay, bk. II, ch. 12.

[2] Ibid., bk. II, ch. xii, 3.

[3] Cf. ibid., bk. II, ch. i, 2, where all knowledge is restricted to experience.

[4] Ibid., bk. II, ch. xii, 6, ch. xxiii, 1.

[5] Ibid., bk. II, ch. xxiii, 4, cf. 5.

[6] Ibid., bk. II, ch. xiii, 19.

[7] Ibid., bk. III, ch. vi, 3, cf. 2, 6.

[8] Art. I, especially pp. 24-27, 33.

is true only of the former.[1] But regardless of where the basis of the qualities may be, their substance cannot be discerned with finality. Locke asserts that "power" is "a great part of our complex ideas of substance,"[2] but he does not elaborate an alternative category to the troublesome substance.[3]

Berkeley (1685-1753) found substance to be entirely spiritual.[4] What had been believed to be a material substance external to the mind is reduced to a mental reality.[5] Neither so-called primary nor secondary qualities have any existence apart from mind.[6] They are ideas which result in the knowing subject from the activity of the divine mind.[7] The reality of ideas "consists only in being perceived,"[8]

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[1]Justification for the usual interpretation seems to follow from bk. II, ch. viii, 9-15 of the Essay.

[2]Ibid., bk. II, ch. xxiii, 7.

[3]Whitehead, PR, 222.

[4]Berkeley's advance in thought about substance consisted in the fact that ". . . he gave up substances outside of spirits," says Freedman, SCB, 51.

[5]This is the theme of the Dialogues and is given much attention in his other chief works.

[6]Dialogues, I (Everyman Edition, 207-240), Principles, 3.

[7]Principles, 28, 29, Dialogues, III (Everyman Edition, 266).

[8]Principles, 139, 2, 8, 25, 137.

hence they are passive and inert.[1] On the other hand, "a soul . . . is an active being, whose existence consists . . . in perceiving ideas and thinking."[2] Thus it may be considered a "spiritual substance."[3] While spirit is "the only substance or support wherein unthinking beings or ideas can exist" it cannot itself be or be like an idea.[4] Yet it is not so obscure as the "I know not what" of Locke. Rather is it immediately known as an active agent.[5] Other spirits are known through notions.[6]

The concept of substance is not found in sense impressions, according to Hume (1711-1776), hence it has no positive significance for knowledge. It is merely a product of the imaginative power which combines the qualities or simple ideas that are frequently together and gives them "a particular name."[7] "We have . . . no idea of a substance"[8] either as applied to physical things or the human soul. The

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[1] Principles, 25, 27, 139.

[2] Ibid., 139, 28.

[3] Ibid., 139, 27, 89.

[4] Ibid., 135.

[5] Dialogues, III (Everyman Edition, 267, 269).

[6] Principles, 89.

[7] Treatise, bk. I, pt. i, sec. 6.

[8] Ibid., pt. iv, sec. 5.

former are nothing apart from qualities or perceptions,[1] and these are in no way bound together. The latter is merely a "heap or collection of different perceptions" which is wrongly endowed with identity.[2] There is "a propensity to feign" continued and substantial existence, but there is actually no such reality.[3]

Thus do the British empiricists minimize the importance of the doctrine of substance. So far as material objects are concerned, substance is either non-existent or unknown. It occurs in experience, but for Hume it is present only as a mode of connection or convention. Berkeley makes it a mental reality but does not elaborate its nature beyond stating that it is a simple, active, agent in which ideas exist.

F. GERMAN IDEALISM

In the philosophy of Kant (1724-1804) substance is a universal and necessary "category" of thought. It is not a "habit" by which impressions are ordered, as Locke and Hume had held, but it is a synthesis of these sensations accomplished a priori by the mind in order that it may think the

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[1] Treatise, bk. I, pt. iv, sec. 4.

[2] Ibid., secs. 2, 6.

[3] Ibid., sec. 2.

objects before it.[1] Unless there is Something persisting in the stream of appearance it would be impossible to make intelligible the order of phenomena.[2]

There are two different ideas here, as Calkins points out.[3] On the one hand, substance is the category supplied to sensations by thought. In this sense it is "permanence" (Beharrlichkeit).[4] On the other hand, substance is "the permanent" (das Beharrliche), and in this sense, which is the one Kant seems more often to mean, it is that which stands to its attributes in the relation of subject to predicate.[5] With this usage the category is "assigned a place among the categories of relation, but rather as the condition of relations than as itself containing a relation."[6] Substance as the permanent is the presupposition of all change. It is that which undergoes transformations.

Kant does not give a satisfactory answer to the question of precisely what this "permanent-required-by-change" is. In

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[1] KdrV, A 77-80, B 103-106.

[2] Ibid., A 183, B 226.

[3] PPP, 555.

[4] The title of the first Analogy is "Grundsatz der Beharrlichkeit der Substanz" (ibid., A 182, B 224).

[5] Ibid., A 186, B 229.

[6] Ibid., A 187, B 230.

the first Analogy he seems to identify substance and time,[1] though he suggests in a later section of the same work (second edition) that the permanent is identifiable with space.[2] Whatever may have been his conclusion about the inherent nature of substance, Kant did not consider it a category coordinate with the others. Rather was it held to be ". . . the condition of the categories, that to which the categories are applied."[3] It made the other categories intelligible.

Substance, along with the other categories, applies only to phenomena, but not to things-in-themselves.[4] The real substratum of all things is unknown. Thus the transcendental self or soul is an unknown substratum beneath its phenomenal manifestations.[5]

Hegel (1770-1831) made substance a category which is both "the totality of accidents" and "the manifold (Reichtum) of all content."[6] Thus it is the reality that is actualized in particular phenomena.[7] By virtue of its being a system of

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[1] KdrV, A 182, B 224-225.

[2] Ibid., B 292.

[3] Calkins, PPP, 556.

[4] Cf. the section on "Phenomena and Noumena," A 235-260, B 294-315, also A 137-147, B 176-187.

[5] Ibid., B 155, 157.

[6] Encyclopädie, art. 151.

[7] Ibid., Art. 153.

attributes it is a concrete universal, "a self-subsistent unity, like the substance of rationalistic philosophers."[1] At its highest level substance becomes a "subject," the thought-unity which breaks itself up or expresses itself in its own particulars.[2] The Absolute is a substance which as thinking subject actualizes itself on various levels, or at different stages of the dialectic.[3]

For Schopenhauer (1788-1860) substance is unconscious will, the true ground of all changing phenomena.[4] Hartmann (1842-1906) made the Unconscious the permanent and unchangeable reality of which the modes are the changing accidents.[5] Lotze (1817-1881) found substance in conscious experience. For him there is an infinite substance or soul which is the unity harmonizing variety and change.[6]

G. MISCELLANEOUS THEORIES

The Scottish school of "common sense," lead by Reid (1710-1796), stoutly opposed Hume's sensationalism by assert-

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[1]Lindsay, Art. I, 913.

[2]Encyclopädie, art. 213.

[3]Cf. ibid., arts. 213, 244, 574, 575, 577.

[4]Die Welt als Wille und Vorstellung, arts. 21, 23, 28, 22.

[5]The Philosophy of the Unconscious, II, 222-244, 276-297.

[6]Metaphysics, arts. 37, 96.

ing the common sense view that objects exist independently of perception, their qualities inhering in a substratum. The subject of the qualities is the true object.[1] While the relation of qualities to their substance remained somewhat obscure, it was thought to be distinguishable from other relations without argument.

Renouvier (1815-1903) held that there is spiritual substance which signifies the coexistence and succession of phenomena.[2] In the writings of Avenarius (1843-1896) and Mach (1838-1916) the concept of substance has an essentially biological significance. It serves the "economy of thought" for it is "a means of correlating a multiplicity of experiences, and giving them one name."[3] But this is only a nominal and not a real unity.

Scientific developments in the nineteenth century had significant results for philosophy. There was a growing distrust of metaphysical speculation contemporaneous with renewed interest in the philosophy of nature.[4] The tendency was to interpret the nature of things in scientific formulae. This movement in thought as it has continued into the twenti-

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[1] Essays, I, ch. II, 5 (Stewart Edition, II, 36).

[2] Lindsay, Art. I, 913.

[3] Cassirer, Art. I, 502.

[4] Calkins, PPP, 397.

eth century has had a marked influence on the concept of substance. This is the problem to be considered in the next chapter. But before beginning that inquiry it will be instructive to summarize the historical uses of the term substance.

H. SUMMARY

From this brief survey it appears that the most important functions which the term substance has performed in the history of thought are the following.

First, it has served as the substratum which consists in physical and mental potentialities. As substratum it has been quantitatively and qualitatively monistic as well as quantitatively and qualitatively pluralistic. Secondly, substance has been thought to consist in number, or in the element of proportion, connection, or harmony that obtains in all becoming. Third, it has been thought of as both formal, or final, and material cause. In the fourth place, it has been considered the active, or passive, known, or unknown, subject in which predicates and qualities inhere, and also these qualities themselves apart from their subject. Fifth, it has denoted both universality and particularity, individuality and generality. Sixth, substance has been held to be not only a convenient though unessential habit of associating

perceptions, but also the universal and necessary category without which knowledge is impossible. Seventh, it has been made the conscious as well as the unconscious unity or permanence in change, the noumenon of changing phenomena.

In the light of these conclusions there appears to be much evidence for Muirhead's thesis that "the problem of substance may be identified with that of Philosophy in general."[1] The variety of meanings which the concept of substance bears has resulted from the efforts of different philosophers to attain ultimate explanations for things. Through these differing interpretations runs the relatively common theme that there is an enduring ground of changing phenomena which gives rise to various forms, but maintains their connection and identity. Substance has meant primarily an independent and self-contained or self-existent reality upon which lesser realities depend for their nature and continuance.[2]

Spaulding's thesis that the whole history of philosophy has been "thingized" by the concept of substance[3] seems, therefore, questionable. His view indicates an oversimplification of history. It emphasizes the logical to the ex-

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[1]Art. I, 197, 175.

[2]Cf. Hoernlé, SCM, 102.

[3]NR, xvi, xvii, 29, 30, 35.

clusion of the metaphysical meanings of the term. Substance as formal or final cause, as the element of proportion in becoming, or as the permanent element in change, does not fit into the "thing" formula.

Recent developments in science which have led to the renewed criticism of substance as a significant concept in philosophy may now be observed.

CHAPTER III

SUBSTANCE IN RECENT SCIENCE

According to classical or Newtonian physics matter was a stuff or substratum manifested in such attributes as mass, extension, motion, and impenetrability. Change, and the supposed creation and disappearance of material objects were considered transformations, according to rigid laws, of the fundamental and enduring matter.[1] Within the three-dimensional frame-work of space, eternal and changeless particles of matter were thought to advance through a one-dimensional time.[2] Particles are in motion, it was asserted, because of external forces exerted upon them.[3] Everywhere in space, not only in its "empty" parts but even in apparently solid bodies, a mysterious substance called ether was commonly postulated.[4]

During the next century and a half it was held that the

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[1]Whitehead, SMW, 73, 74, 70, 78, 80.

[2]Ibid., 76, 79, AOI, 167-169.

[3]Whitehead, SMW, 61. Cf. Buckley, SHP, 38-39, 42-43.

[4]Burnham and Wheelwright, PA, 208-209.

elements constituting the physical world were material substances. But, as will be shown below, by the end of the nineteenth century fixed or inert substances with intrinsic properties were seriously questioned, and within the first quarter of the twentieth century they were largely denied by scientists.[1]

The neo-realists, who believe the difference between science and philosophy is merely one of degree and not of kind,[2] have concluded, partly because of these scientific findings, that there are no complex substances which are basic to reality, and which hold together and explain it. Rather is such explanation to be found, they believe, in ultimate entities which are simple and externally related. The criticisms of the concept of substance by these realists will be more clear after its fate at the hands of scientists is observed.

A. SCIENCE AND MEASUREMENT

Substance as an important concept is minimized, in the first place, by the prevalent belief among scientists that

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[1] Cf. Lindemann, PSQT, 1-12.

[2] Holt, et al., NR, 42, 36, 37. Marvin goes so far as to say the "great metaphysical discoverer and explorer" is the scientist and not "the professional philosopher" (Art. III, 312, cf. 313).

objects are to be defined in terms of certain measurements.

The common sense belief in substantiality is obviously challenged by the conviction, which is even more widely held now than formerly, that reality is different from its appearances.[1] For such scientists as Eddington, Jeans, Millikan, Whitehead, Einstein, Planck, Weyl, and many others, the familiar world of tables and chairs and people is not the real world, but the latter's appearances. What the plain man takes to be a substantial object therefore may actually be something quite different.

But, some scientists assert, there is "nothing substantial"[2] even about the so-called "real world" with which science is concerned. What had been thought to be substantial things by the scientists themselves are now reduced to measurements. Newton had realized that the nature of things can be given a mathematical or metrical statement. Mass, the defining property of matter, was stated mathematically as the weight of a given object divided by the gravitational constant of the place where the measurement was made. Thus by the end of the seventeenth century "a satisfactory basis of measurement" had been found.[3] But even the material sub-

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[1]Cf. Joad, PAMS, 9, 12, 112.

[2]Eddington, NPW, x, xii.

[3]Whitehead, SMW, 66.

stances of Newton are now representable by more minute calculations than he ever imagined possible. As Eddington says,

> The whole trend of modern scientific views is to break down the separate categories of 'things,' 'influences,' 'forms,' etc., and to substitute a common background of all experience. Whether we are studying a material object, a magnetic field, a geometric figure, or a duration of time, our scientific information is summed up in measure.[1]

The scientist deals henceforth with sets of measurements, not with things, and "substance" turns out to be "one of the greatest of our illusions."[2]

Measurements for the scientist <u>are</u>, at least for all practical purposes, the "things" that make up reality. This amounts to a reapplication of the Pythagorean doctrine that qualitative conceptions must be replaced by quantitative relations before thought begins to grasp its objects.[3] Instead of talking about the force with which an elephant would strike an object after sliding down a grassy slope, the physicist reckons that a mass of a certain amount, e. g., two tons, would gain a certain force when proceeding down an inclined plane of 60°, after the coefficient of friction had been calculated.[4] The same procedure would be followed where

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[1]NPW, x-xi, cf. 253, 252.

[2]Ibid., xiv.

[3]Millikan, ELEC, 4. Cf. Burnham and Wheelwright, PA, 206.

[4]Eddington, ibid., 251-252.

very small objects were under consideration.

Whitehead points out that the quantitative determination of objects means nothing for science until the pattern in which these quantities occur is also discovered.[1] This would mean that measurements or quantities which behave according to law are the "things" of science. It would still be possible, however, to express these complex facts in mathematical formulae.

Even if there were more to an object than could be gathered up into its mathematical formula, say the scientists, such a further element would be unimportant. The only factors that determine one's interpretation of reality can be quantitatively expressed. For the physicist the indefinables, in terms of which he expresses other concepts, are length, time, and mass. All of these are numerical concepts.[2] The troublesome problem of how qualities inhere in a substratum need not concern the scientific investigator, for he knows <u>what</u> the object is in his measurements.

The concept of substance is accordingly denied, or at least minimized,[3] by scientists in their belief that objects

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[1]NAL, 17-19.

[2]Lindemann, PSQT, 13.

[3]Eddington, as noted above, finds that the reduction of objects to measurements makes substance an illusion, but, as shown in chapter II, the Pythagorean doctrine of numbers or measurement is still the affirmation of a certain kind of substance.

are certain quantities or measurements.

B. THE RELATIVITY OF MEASUREMENT[1]

A second aspect of scientific thought which has had important consequences for the concept of substance is an elaboration of the first. It consists in the discovery that all measurements are relative. There is no fixity either in the object measured or in the instrument used for measuring.

Solidity in the physical world, as conceived by the classical or Newtonian physicists, was undermined[2] by the Fitzgerald theory of contraction. It was discovered by Fitzgerald that a rod contracts when held along the line of motion. The field of electrical forces which constitutes the volume of the rod is changed by its velocity in a way that does not happen when the rod is held across the line of motion.[3] With the change in the fields of force which constitute the rod there results a change in the rod's length. Thus, unless the earth were at rest, it would be impossible to gain an exact measurement of any object,[4] for the motion

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[1]Scientific developments are treated here more in their logical than chronological order.

[2]The atomic and electronic theories of matter, which also undermined the idea of solidity, are elaborated below.

[3]Buckley, SHP, 219.

[4]Eddington, NPW, 6-8.

of the earth disturbs the fixity of the measuring rod's length.

On the other hand, as Lindemann observes, the application of any measuring device, even that of light, exerts sufficient pressure on the objects measured as to change their original character. The margin of error is the more significant the more minute the measurement.[1] There is accordingly no metrical justification for asserting a solid or fixed substance, for such a reality cannot be established by the most exact calculations science affords. If there is such solid and fixed substance there is no way of ascertaining it.

Einstein has shown on a larger scale the relative inexactitude of measurement. According to the frame of space in which men on this planet measure, objects have certain definite quantitative values. Measurements on other planets must be made according to different frames of space from those employed here. Because the various planets are in motion relatively to each other measurements obtained on one differ from those obtained on another. Measurement of the speed with which an airplane travels from Boston to New York by one of the plane's operators would doubtless vary widely from a calculation made on Mars. Man need not ask whether his frame of space is the <u>right</u> one, for it is the <u>only</u> one

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[1]PSQT, 15-19.

<u>for him</u>. Yet in his calculations, he must remember that his is not the only one there is.[1] Thus ". . . the general statements of phenomena are not capable of expression in an invariant form."[2] Universal and fixed determinations of things are impossible.

Laws of nature are then invariables between variables.[3] In spite of relativity in measurements, the quantities which are taken to represent objects bear reasonably constant relations to each other. It is this element of constancy, as Heraclitus long ago saw, which prevents the universe from dissolving into chaotic flux. But the elements which bear these relatively constant relations are not fixed substances. They vary with the passing of time.[4]

Substance as the fixed and solid stuff of things cannot be predicated because measurements are only approximate. It might be asserted on faith, but faith in what is unverifiable has no place in scientific calculations. If there is fixed substance there is no way of proving it.

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[1]Eddington, NPW, 20-35. Cf. Spaulding, WAI, 184-188, Whitehead, SMW, 167-173.

[2]Buckley, SHP, 225.

[3]Spaulding, ibid., 190-191.

[4]Cf. Whitehead, ibid., 172.

C. THE QUANTUM THEORY

Not only does the relativity of measurement make it highly improbable that there is a fixed and solid stuff or substance in things, but the experimental study of physical objects yields results harmonious with that conclusion. Matter is no longer believed by experimenters to be a solid substance. Rather is it demonstrated with some conclusiveness to be constituted by fields of electrical force.

When the neo-realistic movement was developing in America there was less agreement among physicists concerning the ultimate nature of matter than there is at present. There was, however, a rather general conviction that, whatever matter is, it at least is not an underlying and solid stuff.[1] Subsequent discoveries enabled physicists to show more definitely the absence of stuff and the presence of electrical energy. Today it is "the accepted conclusion" that "all varieties of matter are composed of two elementary constituents—protons and electrons."[2]

Matter had long been reduced to molecules and atoms before the electronic hypotheses were developed. In the first half of the nineteenth century a renewed study, by such sci-

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[1] Cf. Holt, COC, 116-117.

[2] Eddington, NPW, 3. (This book was published in 1928.) But cf. infra, 75-76, where the possibility that electrons are solid is considered.

entists as Dalton and Avogadro, of the atomism bequeathed to modern thought by the Greeks, yielded the important insight that these atoms combine in certain groups according to regular laws.[1] The number of ultimate and necessary elements was thus reduced to seventy. Chemistry as a modern science sprang from this achievement.[2] But in the second half of the last century, it became clear through experiment that the atoms making up the molecules were not indivisible as formerly supposed. Evidence was found which showed them to be aggregates of separate and electrically charged particles. These particles have come to be known as electrons.[3] By the turn of the century this "atomic theory of electricity" had "compelled the abandonment of other points of view."[4]

The solidity or substantiality of matter was at first little altered by the theory that electrical charges are the primordial elements within matter. Mass was supplied to the atom, it was believed, by the positive electron, whose mass was about equal to that of the lightest known atom, viz. the hydrogen atom. Negative charges, on the other hand, were

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[1]Haas, NP, 45-46.

[2]Millikan, ELE, 2.

[3]Bohr, Art. I, 642. Cf. Haas, ibid., 46-55.

[4]Millikan, ibid., 23.

supposed to be embedded in this positive jelly-like sphere, and were thought to have a mass which was only 1/1,845 of that ascribed to the hydrogen atom.[1]

In 1911 Rutherford introduced "the greatest change in our idea of matter since Democritus."[2] He showed that relatively speaking there is as much empty space within the atom as there is in the heavens between the planets. Whatever mass the atom may retain is furnished by the protons or positive charges within it, but these are much smaller than was formerly supposed.[3] It is estimated that the diameter of an electron is only about 1/50,000 of the diameter of an atom, and that the atom's nucleus, formed of positive charges, is very little larger.[4] With the atom shown to be as porous as the solar system,[5] a reversion to the theory of matter as solid substance is unthinkable, regardless of how details of this insight may be enlarged upon.

So far, at least, science has been content to believe

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[1] Cf. Millikan, ELE, 179, Eddington, NPW, 2, Bohr, Art. I, 642.

[2] Eddington, ibid., 1.

[3] Bohr, loc. cit.

[4] Eddington, ibid., 3. Millikan estimates that the nucleus is in no case more than 1/10,000 the diameter of the atom (ibid., 191).

[5] Millikan says the atom is "mostly hole" (loc. cit.).

that matter is sufficiently explained by these two primordial elements, protons and electrons. There is as yet no evidence for a "sub-electron."[1] Some scientists do, however, postulate an imponderable "medium," termed "ether,"[2] in which the electrons and protons act upon each other. Whitehead, on the other hand, regards such an hypothesis as an unnecessary and "muddled notion confusing many different relations under a convenient common form of speech."[3]

It now appears that the nature of a material object can be grasped when the behavior of its constituents, namely the electrons and protons, is determined. The activity of the electron, some scientists think, is intermittent. It does not continuously traverse a given path. Rather does it appear at a series of discrete positions in space, much as an automobile might, which travels not along a highway, but whose course allows it to appear on the highway only at each successive milestone.[4] The electron is a whole field of vibrations and not a single movement in the air.[5] Steady endur-

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[1]Millikan, ELE, 178.

[2]Mills, RMS, 90.

[3]CON, 18, SMW, 145.

[4]Whitehead, SMW, 50.

[5]Whitehead, ibid., 51-52. Cf. Rougier, PNP, 71-72, Mills, ibid., 100.

ance of matter is to be accounted for by the fact that these fields of force prolong their vibrations, as a sustained note of music may be a prolonged series of vibrations. The "essence" of the atom is "the electro-dynamic law according to which the discoverable elements of the electron and the proton form and seek to maintain themselves in a system."[1]

Planck, whose work has figured prominently in the origin and development of the Quantum Theory,[2] maintains that there is a quantum of action, namely, $6 \cdot 52 \cdot 10^{-27}$ erg. sec., by which objects as fields of activity can be measured. He held that energy itself is atomic, and that it is emitted from the atom and hence from the molecule in these tiny units or irreducible quanta.[3] Thus the activity of a given unit of matter can be measured by this rule. The nature of a thing is determined by the number of vibrations, i. e. the number of these minimal units emitted, per second.

Since the physical world is "a field of incessant activity"[4] there remains no ground for the theory that matter is

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[1]Muirhead, Art. I, 179.

[2]Lindemann, PSQT, 3-4.

[3]Planck, ODQT, 17.

[4]Whitehead, NAL, 11.

a fixed and substantial stuff.[1] ". . . The conception of substance is wholly lacking" in science, says Eddington, and "that which most nearly replaces it," namely, the electric charge, is not "exalted as star performer above the other entities of physics."[2] Thus, a stuff-like substratum is rejected by the scientists. Physical things are certain kinds of activities.

D. THE NATURE OF ELECTRONS

In order to determine whether the concept of substance in any of its other forms remains intelligible for philosophy after these developments in science have been recognized, it is necessary to know something about the inherent nature of the electrons themselves. But at this point the problem passes from the province of science into that of philosophy.

Science has no answer to this question concerning the true nature of the electron.[3] The latter is rather "the fundamental entity with which modern science starts."[4] As

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[1] Cf. Weyl's criticisms of material substance in WIM, 1-18. He concludes: "Ich bin fest davon überzeugt, dass die Substanz heute ihre Rolle in der Physik ausgespielt hat" (ibid., 18).

[2] NPW, 274, cf. 273, 318-319, 241.

[3] Thomson, OS, I, 288, Eddington, NPW, 260.

[4] Mills, RMS, 89, cf. 102.

pointed out above, science begins with unknowns and lets their measurements represent them, but it never solves the problem of what the intrinsic nature that is measured may be. The scientist can measure and describe a recurring fact, but he cannot explain what that fact which recurs is in itself.

On the one hand, there is a movement in philosophy to retain a materialistic view of electrons.[1] The internal happenings of atoms are interpreted as the locomotion of material parts. Whatever vibrations take place are, it is held, movements of actual bits of material stuff. Sheldon argues that the electron may itself be considered a "material stuff" since it "moves continuously from place to place" and since it possesses an integrity or individuality of its own which prevents it from being encroached upon by other elements outside itself.[2] Lenzen believes that the attributes of constancy, objectivity, and extensiveness attaching to all physical bodies justifies one in postulating material substance.[3] That which maintains a certain integrity or constancy and acts as a unit, whether extended or unextended may, it is true, be considered a substance. But whether such behavior

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[1]Rougier, PNP, 152-153.

[2]Art. I, especially pp. 548-550.

[3]Art. I, 156, 153.

is possible for a purely material substance may be seriously questioned.

On the other hand, Leibnizian philosophers hold that electrons are of the nature of mind, and that the fields of force which science talks about are forms of conscious energy.[1] Eddington, turning philosopher for the time being, points out that the vibrations or fields of force which are the electrons of the brain in some way turn back upon themselves and become consciousness, or at least support consciousness. This first-hand information about the background of these electrons serves as a clue to the nature of all electrons, he believes.[2] Idealistic philosophers contend that the attributes which science ascribes to electrons, chief among which is activity according to pattern, receive the most adequate metaphysical explanation when conscious life is made the foundation of material things.[3]

A third view, which attempts to mediate between the idealistic and materialistic interpretations of the physical world, advocates the further reduction and analysis of these supposedly ultimate elements discovered by physics. Elec-

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[1]Such philosophers believe in the "dematerialization of matter," as Rougier puts it (PNP, 62-67, 149).

[2]NPW, 260, 267-268, 276, 281.

[3]Cf. Whitehead's second lecture in NAL.

trons are reduced to simpler properties which qualify instants in time and points in space. These final elements resulting from the analysis of matter are "neutral entities."[1] As ultimate simples they somehow get themselves arranged in such complexes as are customarily called material things. The fact that these entities are never found except in complexes that are not neutral in quality, constitutes a difficulty which advocates of this view recognize but do not consider serious.

But the issue concerning the ultimate nature of electrons for philosophy cannot be settled here. Regardless of what their complete and ultimate explanation may be, as fields of force they have at least been shown to retain a certain constancy through given periods of time. They are also known to change when brought into proximity with other fields of force. The change induced need not alter the character of the original field altogether. It matters little what the philosopher may choose to call this reality that is a field of activity, or what quality he may ascribe to it. But the reality itself does have significance for thought about the concept of substance.

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[1]Holt, COC, 118.

E. THE EVOLUTION OF FORMS

While physical sciences occupy the center of the stage in contemporary thought, and are, therefore, chiefly responsible for the acuteness of the problem of substance, some other sciences have also contributed to the controversy. Developments in biology and psychology have made it necessary once more to examine the concept of substance.

In biology the theory of evolution has affected the notion of substance. According to the Scholastic conception of eternal and substantial forms, which had been derived from Aristotle, there were Real Kinds forever ready to be individualized and discovered in experience. Forms or types of being were once created by God, the supreme being, and were thought to stand in a hierarchy of perfection.[1] Growth of forms was not recognized by the Schoolmen.

Darwin, however, sought to show that changes from species to species took place through a series of minute modifications of a few primitive forms.[2] More recent biologists have abandoned this view for the theory that the diversity between species indicates the emergence of new types, perhaps related to earlier forms, but so distantly as to be consid-

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[1] Cf. supra, 44-45, also Sum. Theol., I, 44, Art. 1 (Ans.).

[2] Origin of Species, I, 161-163, 260, 6, 315, II, 94, 99, 104, 115.

ered unique and distinct. The "orderly sequence of events," these scientists argue, "appears to present from time to time something genuinely new."[1]

Either of these hypotheses concerning the origin of species is significant for substance. If all species are derivable ultimately from the same genus or from a few primitive forms the doctrine of Real Kinds must be modified.[2] The growth of forms into more complex species would make the limits of each type hard to discern. This difficulty would obtain in the relation of all so-called species to each other. In short the formula of substance and attribute would be only a means of vague classification for individual forms and not an instrument for their clear distinction.[3] And if, on the other hand, evolution gives rise to the genuinely novel, one must conclude either that new substances themselves arise or that new forms of the one substance appear. Substantial forms would be, according to this theory, created or manifested in the evolutionary process. New substances would then appear in time. They could not have existed eternally.

Accordingly, the theory of evolution raises the problem of permanence and change, identity and diversity, universali-

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[1]Morgan, EE, 1.

[2]Cf. Temple, NMG, 102.

[3]Whitehead, Lectures on "The Function of Reason," Harvard University, 1937.

ty and individuality. These issues have been, as noted above,[1] associated with the problem of substance. The principle of evolution focuses attention once more upon the character of substance.

F. PSYCHOLOGY AND SUBSTANCE

During the last quarter of the nineteenth century and the opening years of the twentieth, psychology came more and more to be recognized as a separate science.[2] Beginning in that period and continuing to the present there have been developments which have made the question of substance in consciousness a vital issue.

As early as 1884 James urged the importance of the "transitive" over the "substantive" elements in the stream of consciousness.[3] Wundt, Yerkes, Münsterberg, and Titchener, were leaders in a movement to study consciousness by observing its structure.[4] This school of "structuralists" in psychology held that consciousness is a compound of states. By discriminating the items of which a person may be aware at any given moment, e. g. the sensation blue, or a feeling of

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[1] Cf. pp. 58-59.

[2] J. S. Moore, FOP, 19.

[3] Bentley, Art. I, 383.

[4] J. S. Moore, ibid., 27.

anger, it was supposed that consciousness was explained.[1] With the development of experimental methods in psychology the "structuralists" have tended less and less to distinguish themselves from other schools.[2] Yet the inclination persists to explain consciousness atomistically, i. e. by its reduction to parts. It is clear that if mind or consciousness is only a loose aggregate of states or elements, there is little ground for belief in mental or spiritual substance.[3]

However, other schools of psychology have strongly opposed explanation of consciousness by mere analysis. Gestalt,[4] functional,[5] and dynamic psychologists[6] have emphasized the organic, and active unity of consciousness. Representatives of these schools have employed the method of analysis but they have been more concerned with the whole of consciousness than with its parts. Their views would permit the conclusion that the self or spiritual substance is the element of wholeness and permanence in conscious experience.

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[1]Piper and Ward, FMK, 101.

[2]Nafe, Art. I, 128-129.

[3]The concept of the "subconscious" employed by psychoanalysts does have some affinity with the doctrine of substance, however.

[4]Murchison, P030, 143-187.

[5]Ibid., 59-78.

[6]Ibid., 327-336.

It is, however, doubtful whether they would concede that belief in a soul-substance which is transcendent to the stream of conscious experience is justifiable. Modern scientific psychology with its emphasis on experimental verification has almost unanimously rejected this older theory of soul-substance.[1]

The question of whether there is or is not spiritual or mental substance, and if so, what its nature is, cannot be considered closed. According to metaphysical behaviorism there is no non-physical consciousness at all.[2] Of the schools which allow that consciousness is a unique and non-physical reality, some deny its substantiality, others propose views consistent with it. The philosopher must formulate his concept of consciousness in the light of evidence which all these schools present.

G. CONCLUSIONS

From these developments in science one may conclude that there is evidence for abandoning substance in some senses, and for retaining it in others.

Among physicists there is rather general agreement that matter is not a solid, stuff-like, substance in which such

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[1] J. S. Moore, FOP, 8.

[2] Murchison, P030, 281-306.

qualities as mass, motion, extension, and impenetrability inhere. There is no solid block of substance which is manifested in particular physical things. Nor can matter be considered a sum of indestructible atoms which become related in such fashion as to account for the apparently solid and substantial character of material objects.

However, the conclusion of physicists that material objects are fields of force within which there are other fields of activity may not make necessary the complete rejection of substance. If these fields of activity are relatively constant though subject to change when outside influences play upon them, the philosopher may hold that substance in some sense still remains.

In the first place, the historical conception of substance as the potentiality out of which particular things arise does not appear to have been denied by contemporary physicists. The capacity of electrons as fields of force to become related so as to constitute now this thing and now that may be explained by a theory of substance. Matter still has the potentiality of assuming many different forms. Secondly, substance as the formal cause of physical things may also be left to philosophy. The fact that the potentialities for particular things actually become those particular things may be due to a substantial or formative element in reality.

Finally, substance as the element of unity or permanence in change remains an intelligible concept in spite of research in physics. Given fields of force are altered by the influence of other such fields, but their identity is not totally destroyed. Otherwise the universe would dissolve into a hopeless flux, a madhouse of meaninglessness.

In biology the theory of evolution has raised the question of whether there are one or many substances, and whether they are created in time or are eternally existent. Psychologists unite in rejecting the theory of a transcendent soul or substance in, or rather beyond, consciousness. They differ in their answers to the question of whether consciousness is a unified and organic activity. The conclusion that there may be something substantial about mind receives support from some of them, but it is also denied by others.

The significance of recent scientific developments cannot and should not be further elaborated here. Sufficient evidence has been presented to show that the concept of substance is clearly in need of revision. For this reason the neo-realistic criticisms of it are timely and may be expected to have some validity. That the necessity for rejecting substance in every sense can be shown by neo-realists, seems, however, improbable. The variety of meanings which the concept has expressed in the history of thought makes it reason-

able to suppose that some of them may be retained. Moreover, developments in science still permit the retention of the doctrine in some of its historical meanings.

Revisions which neo-realists have shown to be pertinent to substance may now be observed.

CHAPTER IV

ANALYSIS AND THE NEW LOGIC

Neo-realists make plain their attitude toward the concept of substance in the method by which they investigate the data of experience. The school "champions analysis as an ultimate method of research. . . ,"[1] and eschews all synthetic and intuitive methods as final. These "devotees of analysis" regard substance as one of the "complexes" that are capable of further reduction, and not as itself a simple category.[2] Because it is "incompatible with his theory of analysis,"[3] substance must be rejected by the neo-realist. A true ontology and epistemology ". . . can only be the outcome of analytical method. . . ,"[4] and this means for the realist that in these two realms the concept of substance plays but a small part, if indeed it signifies anything whatsoever.

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[1]Marvin, Art. III, 316.

[2]Perry, Art. IV, 127. Cf. Holt, et al., NR, 33.

[3]Evans, NROR, 96.

[4]Ibid., 97.

If the neo-realistic claim can be established that the method of analysis is valid as the final procedure in research, the concept of substance may be rejected. It is therefore necessary to observe the nature and validity of this method.

A. DEFINITION AND PURPOSE OF ANALYSIS

Neo-realists offer as a preliminary definition the assertion that analysis is ". . . only the careful, systematic, and exhaustive examination of any topic of discourse."[1] It is "simply the discrimination and specification of the detail of experience."[2] "Analytical thinking" is equated with "exact thinking,"[3] and it results in "exact knowledge."[4] But if this were all the method involved, it would not differ from others. Rather would it be merely an elaboration of the neo-realistic emphasis upon "the scrupulous use of words" and "definition,"[5] and as such it would be acceptable to any investigator in philosophy. This insistence on rig-

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[1]Holt et al., NR, 24. Cf. Perry, PCI, 373.

[2]Perry, PPT, 236.

[3]Perry, Art. IV, 107.

[4]Holt, ibid., 24.

[5]Ibid., 21-23.

orous definitions may have brought the charge of "new scholasticism"[1] upon the school, but if so it is indeed a noble stigma to bear.

In actual use by the neo-realists, however, the method of analysis possesses further and more controversial significance. It is the method of finding explanations for things in ultimate and simple entities. Through analysis ". . . the problematic is discovered to be a complex of simples,"[2] and hence no longer problematic. No complex is understood until it has been reduced to such simples as are incapable of further reduction. These simples are ". . . the terms that survive an analysis that has been carried as far as it is possible to carry it. . . ."[3] For neo-realism "there are no complex unities,"[4] but only complexes made up of ultimate simples. "A neo-realist recognizes no ultimate immediacies nor non-relational nor indefinable entities, except the simples in which analysis terminates."[5] The fundamental meaning of any object rests

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[1]Cohen, Art. I, 264.

[2]Holt, et al., NR, 24.

[3]Ibid., 32.

[4]Marvin, FBM, 79.

[5]Holt, ibid., 32.

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in the simple entities which constitute it.[1]

The method of analysis is an effort to understand the universe through its parts and not through its wholes.[2] One of the theses supported by neo-realism is, according to Perry, that ". . . we must work . . . from the part to the whole,"[3] and not vice versa. The data to be analyzed, may, to be sure, occur as wholes. Analysis means ". . . to discover that an entity is in some sense formed or composed of parts," and hence it "involves the whole-part relation."[4] The parts, their organizing relations, and whatever properties the whole may have which the parts do not, are specified by analysis,[5] but the chief importance is found in the parts, for they supply the character of the whole.[6]

Stress is laid on the fact that analysis is a discovery

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[1]Perry asserts that ". . . a complex depends on . . . [its] simple components both for its nature and its meaning" (Art. IV, 127).

[2]"The world" (i. e. the universe) for the neo-realist is at least "an articulate structure that is revealed by analysis" (Holt, et al., NR, 35), but it is itself not one organic whole, as will be shown below.

[3]PCI, 374.

[4]Spaulding, Art. V, 158.

[5]Ibid., 161.

[6]Perry, PPT, 319. Spaulding holds that the whole is at least no more significant than the parts for the latter ". . . are real in quite the same sense as are the wholes which are analyzed" (Art. V, 155).

of parts in a whole and not their invention or falsification so as to contradict the whole.[1] In reply to the pragmatist, who makes the first charge, it is asserted that though one may select parts in a given whole for purely practical reasons, such as prediction and control of nature, and may make artificial divisions of wholes into parts, this is no condemnation of the method but merely a misuse of it.[2] To the contention of Bergson and Bradley that analysis results in parts that contradict the whole, e. g. that the analysis of motion leads to rests,[3] the realist retorts that this too is a misuse of the method, and that the attack presupposes the validity of analysis.[4]

The philosophic enterprise begins and ends in analysis, for the neo-realist. ". . . The very objects of philosophy are the fruit of analysis," i. e. the naïve assumptions of common sense are first banished through analysis.[5] On the

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[1]Spaulding, Art. V, 155. A liberal use of the principle of independence, one of the cardinal doctrines of neo-realism (cf. Perry, Art. IV), is made in defense of this interpretation of analysis.

[2]Spaulding, ibid., 158-159.

[3]Cf. Burnham and Wheelwright's assertion that "any type of analysis, if pressed too far, will lead to paradox." PA, 91.

[4]Spaulding, ibid., 160-161.

[5]Holt, et al., NR, 21.

other hand, the fundamental truths attained by the philosopher result from analysis.[1] It is little wonder, therefore, that ". . . one of the major purposes of the new realism [is] to justify and to extend the [i. e. this] method of logic. . . ."[2] Spaulding points out that no proposition, and hence no method or criterion, can be shown to be "more than tentative,"[3] but nevertheless he believes, as do his colleagues, that the results of analysis are more trustworthy and fruitful than those attained by any other method. It is a method which has "full ontological validity."[4]

There is nothing which <u>necessarily</u> escapes analysis.[5] The fact that something is not yet analyzed does not mean that it is unanalyzable.[6] An adequate account of life and mind can even be given by "the ordinary methods of analysis and research. . . ."[7] Whatever actually turns out to be

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[1]Marvin maintains that "logical analysis" reveals not only "the foundations of science" but "the foundations of other independent systems of propositions" which are "at least implicitly asserted in man's art, in his morals, and in his religion." Art. II, 92.

[2]Holt, et al., NR, 26.

[3]Ibid., 479.

[4]Ibid., 26.

[5]Ibid., 24.

[6]Marvin, FBM, 77-79.

[7]Pitkin, Art. III, 377.

unanalyzable into simpler entities does so only because it fails to "exhibit . . . complexity of structure."[1] In short, analysis is believed to be the most reliable and generally applicable method available for philosophical investigation.

These claims for the analytic method must now be examined. In the first place, it should be noted that the universal efficacy of analysis is not demonstrated by the neo-realist, though its wide applicability is maintained. While the assertion that nothing necessarily escapes analysis[2] suggests that there are no cases where the method is inapplicable, Pitkin confesses the inadequacy of analysis to deal with the relation between stimulus and reaction in the "lower senses."[3] He goes on to say that "formal analysis is only one of many methods of discerning reals," and that it ". . . may be just as incompetent to deal with some problems as deduction is useless in one's endeavor to decide which of two paintings is the more beautiful."[4] If the analytic method is "incompetent" to deal with some problems, it is reason-

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[1]Holt, et al., NR, 24.

[2]Loc. cit.

[3]Art. III, 406n.

[4]Ibid., 407n.

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able to inquire whether substance is one of them.[1] The possibility that it is must remain open until the realists have shown by their actual use of the method that it is capable of reducing substance to constituent simples. There is at any rate no a priori necessity for the realist to eliminate the concept of substance from metaphysics merely because he employs the method of analysis.

Furthermore, if analysis is "only one of many methods of discerning reals," the chief question to be answered is not whether analysis is the right or wrong method but whether it gives a more adequate account of these "reals" than other methods do. If one investigates the nature of a given material object, e. g. a paper clip, the realist must establish the fact that analysis yields a more adequate explanation of the complex than does a synoptic, an intuitive, or some other method. Should the explanation given by analysis turn out to be the most adequate, it would have to be con-

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[1]Pitkin implies that activity is not further analyzable in any significant sense when he says that "every discernible, or . . . every real must be defined in terms of and identified with its activity" and that any definition "founded upon anything less is abstract, partial, and . . . only adapted to special . . . purposes." (Art. I, 226, 227.) Montague's conception of a thing as an "active form" is a similar notion. (CSD, 51-52, 54, 56, 58.) Since substance and activity are sometimes identified (cf. supra, p. 9n2) this may turn out to be an admission that the analytic method is "incompetent" to deal with substance.

ceded that the paper clip is not or does not contain a substance. But should some other method be able to demonstrate greater adequacy in explaining the complex,[1] it might be possible to retain, at least in this particular case, the concept of substance. Defense of the analytic method must mean a defense of its ultimate adequacy as a means of explanation.

Critics of neo-realism sometimes argue that if desire is as influential as Perry and Holt assert, analysis would scarcely be as objective as neo-realism assumes. Objects might be analyzed differently, it is argued, as different interests were present in the individual doing the analyzing.[2] According to this reasoning a chemist analyzing the brain might secure results, i. e. simples, differing from those obtained by a psychologist. But the realist could well reply that disagreement among investigators analyzing the same object, say the brain, could exist only so long as analysis was incomplete.[3] Regardless of what the units might be

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[1] Any other reliable method would of course involve analysis. Whatever superiority it might have over analysis would consist in a supplement to the analytic method or in a different interpretation of its results.

[2] Evans, NROR, 190. Cf. Schweitzer's discussion of the intuitive factor in analysis. Art. I, especially pp. 173-175.

[3] Cf. the realistic answer to a similar criticism made by pragmatists. Supra, pp. 89-90.

to which the brain were at first reduced, the simples finally reached by analysis must be the same. The simples attained by any analysis, however performed, would be the same, else they would not be completely simple.[1]

A more serious criticism of the analytic method, and one which realists have great difficulty in answering, concerns the significance of these simples after they are attained. If a simple is something which is "non-relational," "indefinable," and "ultimately immediate," it is an entity which is exceedingly abstract.[2] An absolute simple, assuming that realists believe there are such, when taken alone, would be so abstract as to be almost unintelligible. It would be a mere <u>that</u>. To be sure simples are never found alone, but are always discovered in complexes.[3] Yet these simples are themselves taken to be the explanation of the

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[1]There is considerable ambiguity in the concept of simplicity employed by neo-realists. Some passages indicate that a "simple" has no determination other than the mere fact of being (cf. Holt, et al., NR, 32, Holt, COC, 20-23, 63, Perry, Art. IV, 118, 119). Others clearly suggest that simples are only relatively indeterminate and that they consequently possess several definite characteristics (Holt, COC, 154, 103, 66, 51, Spaulding, NR, 11, 43, 494, Montague, Art. IV, 253). The difference between a simple and a complex cannot therefore be unequivocally established. This problem is further discussed in chapter VII. Cf. pp. 242-248.

[2]Holt specifically asserts that "the simple and fundamental entities are abstract." (COC, 160.)

[3]Perry, Art. IV, 127.

complex in which they stand. This means that the concrete is explained by the abstract. There is no reason why this should not be done, provided, however, that more knowledge is gained about the complex the more analysis proceeds toward abstraction.[1] But such additional knowledge would be possible only if one knew more of importance about the simples than one does about the complex.[2] To reduce a complex to a series of "thats" is scarcely to gain more knowledge of importance about the complex. It is discovered only that the complex is composed of "thats."

The realist would probably reply that this abstractness is inevitable in simples. The concrete objects one knows in everyday experience, it would be argued, are the complexes formed by simples which become related and somehow generate qualities. This is all one needs to know about the origin and meaning of complexes. But the analytic method does not explain <u>how</u> these simples assume some relations and terminate others, nor <u>how</u> relations can join simples into complex

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[1]It is usual of course "to explain anything we do not understand" by showing "how it fits into some order or system of things which we do understand. . . ." Piper, FMK, 285.

[2]In most cases the analyst does know more about some of the elements in a complex than he does about the complex. For example, he may know more about the printed words used in the argument of a paragraph in Hegel's <u>Logic</u> than he does about the argument. But he knows next to nothing about the simples to which those printed words may be reduced.

groups. It merely states that such relationships occur.[1] This is a grave weakness in the method of analysis. If the latter is to be judged by its adequacy to account for the factors in a given philosophical inquiry, it must be convicted of failure at this point. A synoptic method,[2] for example, would require one to interpret all the facts, and hence to make an attempt to explain how these simples change their relations, or else to conclude that the ultimate entities of the universe are complexes. Thus the analyst appears to overestimate the significance of simples as the units of explanation.

The adequacy of the analytic method can be more competently judged, however, after its details have been further considered. On the face of it, this method seems scarcely capable of justifying itself as the most ultimate and reliable way of carrying on philosophic inquiry.

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[1]If the ground of these changes rests in the simples themselves they are not simple for they would then possess definite capacities or attributes. If, on the other hand, the reason for change is to be found in complexes, the latter are as ultimate as the simples. Analysts do not seem to face this difficulty.

[2]By synopsis is meant the interpretation of an object or complex so that its constituent parts are discriminated and viewed in relation to each other, and so that the properties of the wholes which they make up are evaluated. It is "the viewing together" of all parts and properties of any given whole.

B. TYPES OF ANALYSIS

There are chiefly two kinds of analysis that are stressed by neo-realism, namely, formal, i. e. analysis *in situ*, and experimental.[1] A brief consideration of these two types of analysis will help to explain the method further.

Formal analysis, or analysis *in situ*, means the discovery and distinction of parts in wholes without their actual separation from each other or from the whole in which they are found. For example, if one analyzes the motion of a ball tossed into the air, one does not stop the ball each instant in order to get a series of photographs. Rather must one find in the total complex which is constituted by the ball from the time it starts to rise until it comes to rest again, by theory, the points in space, instants in time, qualities and relations that make up that complex.[2] One would, likewise, have to leave the parts *in situ*, or in place, when analyzing the flow of an electric current, the number continuum, or the continuity of time.[3]

Analysis of this type, says Spaulding, is especially useful in discovering functional relations. The retarded

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[1]Spaulding, Art. V, 155, 156.

[2]Marvin, FBM, 76-77.

[3]Spaulding, ibid., 156.

velocity of a projectile shot from a gun, for example, is a function of the time that elapses between the explosion in the gun and the projectile's contact with its target. Such a relationship could not be determined experimentally.[1]

This is the more important of the two types of analysis, since so many objects cannot actually be taken apart and literally reduced to the ultimate simples that constitute them. Occurrences in history, geometrical objects, elements of physics and chemistry, and astronomical phenomena,[2] illustrate this fact. Even those objects that can be experimentally analyzed, e. g. water, a mud pie, cannot actually be reduced to pure simples. The final stages of the analytic process must always be carried on in situ. Only some wholes formally analyzed are capable of experimental analysis, but on the other hand all wholes analyzed experimentally can be analyzed formally.

Realists of this school are careful to point out that analysis does not "destroy its object."[3] An object does not become through analysis a mere collection of fragments. It is, on the other hand, ". . . identical with these frag-

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[1]NR, 208-210.

[2]Spaulding, NR, 208, cf. Art. V, 156.

[3]Holt, et al., NR, 24. Cf. Marvin, FBM, 76, 77, 78.

ments in that particular arrangement which has been [theoretically] destroyed."[1] Humpty Dumpty is himself only when his pieces are together. Analysis does not allow one to forget "the combining relations."[2] The whole is ". . . the parts and their properties and the relations relating the parts and the possibly specific properties of the whole."[3] Analysis in situ identifies these parts and relations and asserts that when they are together they constitute a whole of a particular type and name.

The second kind of analysis, i. e. the experimental, is that type of examination which involves the actual manipulation of the object under consideration. It often means the separation of parts from each other and thus their re-

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[1]Holt, et al., NR, 24.

[2]Loc. cit.

[3]Spaulding, Art. V, 161, cf. NR, 446-447. Perry, it is true, says that wholes are merely ". . . collections or sums of the natures and values possessed by their parts" (PCI, 374, cf. PPT, 319), though the statement that the "term-and-relation character" is not "all there is" to reality would seem to soften this assertion somewhat (PPT, 234). He also says that there are "relations of organic unity" (PPT, 244), but he denies that a part can in any important sense be dependent upon a whole (Art. IV, 107-109). Holt points out that there are unique properties of the whole, but that they are generated by the parts, and hence do not condition the parts (Art. I, 340). Pitkin concedes that there is at least some kind of an "organic pluralism" (Art. III, 425). Apparently it is characteristic of neo-realism to concede that wholes have properties which parts have not, though there is no unanimity in stating or explaining the fact.

moval from the whole. Sometimes wholes are ". . . physically taken apart and their constituents are perceived or revealed in quite the same way as are they themselves, as wholes."[1] This type of analysis concerns ". . . those entities which are dealt with in the chemical, the physical, the biological, and perhaps also, the psychological laboratory."[2]

A good illustration of the experimental method may be found in the analysis of water. A molecule of water may be reduced by electrolysis to two atoms of hydrogen and one of oxygen.[3] Two gases are now obtained instead of the liquid, water. Experiments of mixing these two gases with others shows that their properties for combining with other elements differ from each other and from those possessed by water, the original compound. Thus the chemical properties of the three "substances," water, oxygen, and hydrogen, are different. Measurement and observation would establish such physical properties as specific gravity, refractive power, boiling point, electrical conductivity, and elasticity. These would be common to all three "substances," though

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[1]Spaulding, Art. V, 156.

[2]Loc. cit.

[3]Actual experiment would of course require sufficient water to yield measurable results. Hence an enormous number of molecules would be involved, but for purposes of clarity one may speak of the analysis of only one.

their numerical values would not be identical. For example, the boiling point of water would be 100°C, that of hydrogen -250°C, oxygen -181°C. The boiling point, electrical conductivity, absorptive power, and elasticity of the two gases would be found to differ so widely in value from the value these properties have as applied to water, that the latter would be found to possess uniqueness in these respects.[1] Experimental analysis in this case actually decomposes the whole, notes the unique properties of the whole, the parts and their properties, and the combining relations.

There are four kinds of wholes with which analysis is concerned. First, aggregates or collections may be considered wholes.[2] Any number of objects in any order,[3] e. g. the objects before a student sitting at his desk, namely, a blotter, pen, watch, books, calendar, constitute such a whole. The chief connective or "organizing relation" is <u>and</u>. ". . . Anything, taken with at least one other "something," and these two with another something, and so on,

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[1]Cf. Spaulding's discussion concerning the analysis of water. Art. V, 237-239. He also treats experimental analysis on pp. 225-230.

[2]Ray (CNR, 29) expresses doubt about the accuracy of calling such groups wholes. Cf. also Taylor, EOM, 96.

[3]Spaulding, ibid., 157, NR, 193.

form a whole."[1] There are no distinctive properties of the whole. It is only the sum of its parts and their properties numerically conjoined.[2]

Secondly, classes which are composed of parts that are not classes, may be treated as wholes. These classes may consist of organic wholes, individuals, simples, or collections. Atoms of carbon, electrons, Americans, the even integers, or rational fractions may be considered such wholes.[3] It is characteristic of these wholes to contain parts that are similar in at least one and possibly in many respects. For example, each atom of carbon has the same weight and specific gravity, each even number is divisible by two, and so on. Thus the parts possess in common one or more relations other than that of numerical conjunction.[4] Spaulding presents detailed illustrations for wholes of this type in his discussions of arithmetical analysis and the analysis of space, time, motion, velocity, atoms and other

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[1]Spaulding, Art. V, 163.

[2]Ibid., 164.

[3]Spaulding, Art. V, 157, NR, 193.

[4]Spaulding, Art. V, 169.

classes of individuals.[1]

A third type of whole consists of classes which are made up of subordinate classes. Chemical elements, numbers, and integers are of this type for they are classes which may be subdivided respectively into such further classes as monovalent and bivalent elements, cardinal and ordinal numbers, odd and even integers.[2] Perceptual and conceptual analysis reveal that there are kinds of entities, i. e. entities which have in common their membership in certain classes.[3] The parts in this type of whole are thus related by the fact of membership in a class, and they in turn consist of parts related in the same way.

The fourth kind of whole which one may consider is a unity or an organic whole. A specific individual chemical compound, molecule, or atom, existing at some particular place and time, or any individual organism would be included in this type.[4] The molecules of salt in the tears of Mrs. John Jones upon the death of her husband are organic wholes.

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[1]Spaulding, Art. V, 173-230. The "specific complexes," "functional," "contradictory," "consistent," and "implicative" wholes which Spaulding discusses as separate types of wholes in NR, 194-195, are treated under this second type of whole in the cooperative volume.

[2]Spaulding, Art. V, 157, NR, 193-194.

[3]Spaulding, Art. V, 230-235.

[4]Ibid., 157.

She herself as a living organism is also an organic whole. Parts of these wholes and their combining relations may be of many different kinds. There are properties of the whole which the parts have not, and which are not merely the sums of the properties possessed by the parts and their relations.[1]

A great part of Spaulding's article in the cooperative volume is given over to applications of the analytic method to specific wholes. The New Rationalism, Spaulding's most important book representing the views of the school, also abounds with concrete applications of this method. The details of such analyses may be passed over. It is sufficient to note here that these illustrations are presented as cumulative evidence for the method's general applicability and validity.

Both the formal and experimental types of analysis are believed by the realist to enable him to deal conclusively with each whole as he investigates it. Analysis, it is held, "exhausts the whole up to the point which it [i. e. analysis] reaches,"[2] and though there may still remain parts and relations to be discovered, the parts and relations al-

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[1]Cf. the discussion above on p. 101 concerning the experimental analysis of water, an organic whole.

[2]Spaulding, Art. V, 161.

ready found have a distinct meaning of their own. It is implied that no matter what further information may be gained about a given whole, it will not change conclusions about the parts and relations already discovered.

This may be true of a whole that is a mere aggregate, but it is difficult to see how such a view can justly be held concerning organic wholes.[1] Classical physicists believed, for example, that their analysis was exhaustive up to the point it had reached when they declared that a molecule of matter was composed of atoms in certain relations. Properties of mass, extension, motion, and impenetrability were ascribed to these molecules.[2] The theory of electrons has, however, greatly modified this classical view of matter, particularly with regard to the "extension" and "impenetrability" of any given molecule. Analysis does not in this case seem to have been "exhaustive" up to the point it had reached. As further knowledge of the whole was attained what had already been known was to some extent altered thereby.

The analytic realist might reply that analysis was exhaustive and therefore reliable up to the point it had

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[1]Cf. the criticisms of analysis presented by Smuts, HAE, 19-20.

[2]Cf. Burnham and Wheelwright, PA, 213.

reached because it had reduced the facts it was able to discover to simples and had thus explained them.[1] From this point of view the discovery of electrons would merely mean that new data in the whole were presented for explanation, i. e. for reduction to simples. But since some of the properties of the molecule of matter under consideration, notably "extension" and "impenetrability," have had to be so revised as scarcely to resemble the character they were earlier believed to have, the complete validity of the earlier analysis must be denied. To have called impenetrability a simple or to have reduced it to simples apparently would not have been a reliable explanation of it, and thus of the molecule to which it was ascribed.

It might be retorted that with any other method of research beside the analytic, one would have had to revise his findings when the electronic theories of matter began to play havoc with the theory of impenetrability. This of course is true, but the user of other methods, e. g. the synoptic, could claim that such further "knowledge" of the molecule of matter as the electronic hypothesis presents, helps him to gain a more complete explanation of the mole-

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[1]The neo-realists of course never defended classical physics. This illustration is used merely to show what happens when it is assumed that the analysis of a whole completes its function as it goes.

cule, and that previous "knowledge" of it had not been supposed to be exhaustive. It could be held by the synoptist that even the present knowledge of the electronic character of the atoms within the molecule is not "exhaustive." He would thus save himself from embarrassment if other drastic discoveries should occur. The analyst, on the other hand, would not be able to distinguish between good, bad, or indifferent explanations of the molecule if he claims that present analyses are so far exhaustive of the whole.

A further difficulty with the realistic treatment of wholes is the failure to give an adequate account of the properties themselves which are unique with the wholes.[1] Spaulding concedes that in certain combinations parts form wholes with properties which none of the parts have separately, but he calls this generation of new properties "a non-rational element in nature."[2] Such an admission, however, means giving up the philosophic enterprise right where it is most important that it be continued.

Vast areas of reality would still remain uninterpreted

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[1]Ray, CNR, 22.

[2]Art. V, 161. Yet this is the very process which he calls "creative synthesis," and makes the principle for explaining the new complexities which arise with the passing of time. Ibid., 168, NR, 448. (This problem of creativity is discussed below in chapter VII.)

after the analytic method had done its best, for such organic wholes are found in biological organisms, chemical compounds, molecules, and atoms.[1] This would mean that the whole area called by traditional thought the material world is honeycombed with wholes some of whose properties are termed "non-rational." For example, the fact that certain quantities of the two gases, hydrogen and oxygen, combine to form the visible liquid, water, must be called non-rational and left unexplained. Analysis merely specifies that this new whole has unique properties but goes no farther. The plant and animal kingdoms would also abound with non-rational data, if analysis were to be the final method of investigation. That a man can think, run, and paint, though neither the ovum from which he grew nor any of the organs within his body could do these things, would be recognized by the analyst, but these properties of the whole would be labeled non-rational.

It is not only the extent of these properties of the whole which makes it difficult to accept the analytic method as final, but it is also their significance. The most

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[1]Spaulding, Art. V, 157, NR, 193-197. Whitehead points out that modern "science . . . is becoming the study of organisms" and that it is probable that "there are . . . primary organisms which are incapable of further analysis." (SMW, 150, 151.) Thus even "the atom is transforming itself into an organism. . . ." (Ibid., 149.)

significant property of Mr. Brown is his ability to think, and not that his body is made up of so many elements and that these are reducible to simples.[1] For most ordinary purposes it is far more significant that sodium chloride has a savory taste and the property of preserving food and improving the soil when used in proper quantities, than that it is made up of a poisonous gas (chlorine) and an alkaline metal (sodium). These unique properties of the whole are ". . . the most complex and significant structures of our experience,"[2] yet the analytic method merely labels them. It does not explain them.

The analyst might reply that the question of "significance" introduces "practical considerations which are more confusing than clarifying."[3] It may be admitted that the question of significance is a "practical" or valuational consideration, but the realist is unable to give an adequate interpretation of a whole without it. Merely to say <u>that</u> a whole has certain parts, that these parts have certain properties and relations, and that the whole has properties

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[1]To be sure behaviorists do not concede that thought is a unique property of the human organism. But this school has now lost its standing in most quarters. It will be further discussed below in chapter VI.

[2]Brightman, ITP, 24.

[3]Perry, Art. IV, 104.

which the parts have not is not enough. Something must be said about the importance of these factors in relation to each other. As a matter of fact the analyst himself introduces to some extent the factor of significance. He presupposes that simples are more significant than complexes by explaining the latter in terms of the former. The critic of analysis then differs from the analyst merely in the characteristics of the whole which he considers the most significant.

That the properties unique with the whole are more significant in the explanation of that whole than the simples to which it may be reduced, is at least the testimony of common sense. Certainly the importance of simples cannot be upheld by common sense for they are never met in common experience. They are, on the other hand, far removed from the convictions of common sense. Arguments from common sense usually mean little in philosophy, but since neo-realism claims to be on the side of common sense,[1] the argument in this case may have some weight. At least it does not support the realist's case.

The inability of neo-realists to interpret the properties of organic wholes makes it questionable, therefore,

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[1] Holt, et al., NR, 10.

whether these realists have shown that analysis must be the final and ultimate instrument of thought. Further light will be thrown upon this question by considering whether neo-realism's criticisms of traditional logic are valid.

C. CRITICISMS OF TRADITIONAL LOGIC

Neo-realistic method is at once a plan for investigating new data and a criticism of the older or traditional methods of logic.

In the first place,[1] neo-realists contend that traditional logic in its Aristotelian form has overestimated the importance of the substance-attribute formula as a principle of explanation.[2] In the so-called "new logic" these concepts, ". . . even if they are not given up entirely, play a minor part, and the concept of relation plays the major role."[3] Aristotelian logic suffers because it "recognizes only a limited number of relations between enti-

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[1]Neo-realists offer other criticisms of the traditional logic than those discussed here (cf. especially Spaulding, NR, 173-175), but those treated in this chapter are particularly relevant to the general validity of the analytic method, and hence are of vital importance for the concept of substance.

[2]Spaulding, NR, xvi.

[3]Ibid., 173.

ties. . . ."[1] The subject-predicate formulations of the old logic do not provide for such relational propositions as "A is less than B." The logic of relations can explain situations, claim the realists, which had formerly been explained by substance and attribute.[2] Whereas the older or Aristotelian logic was a logic of classes, "the logic of modern exact science [which is the logic of neo-realism] is one of series," says Spaulding.[3]

The bearing of this phase of the new logic on the concept of substance will be further considered in chapter V. It may be observed here, however, that neo-realists rightly indicate a weakness in the Aristotelian logic. The latter stresses primarily the nature of terms or subjects, whereas the new logic emphasizes their relations to each other. There is definite explanatory value in considering the symmetrical, asymmetrical, transitive, and intransitive relations of entities in series.

Yet Spaulding's contention that the subject-predicate relation <u>cannot</u> express some relations,[4] e. g. "less than,"

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[1]Spaulding, NR, xvi.

[2]Ibid., 173, cf. 36, 157-158, 192; Marvin, FBM, 178.

[3]Spaulding, ibid., 156, cf. 157, 174-175.

[4]Ibid., 173.

or "implies," is unsupportable. If one says "a shilling is less than a pound," he can be referring to the fact that a shilling has the property, and thus is the property, of being less than a pound. Or, "A implies B," can also be expressed by the proposition "A is implier of B," i. e. A has the property of being implier of B.[1] It may be admitted that some "distortion"[2] of the two original propositions was necessary in order to employ the substance-attribute, or subject-predicate, relation. Their meaning was, nevertheless, clearly expressed. Though the relation "less than" refers both to "a shilling" and to "a pound" there is no harm done by considering it an attribute of "a shilling."

While, therefore, it may be useful to employ other relations than the subject-predicate, the latter need not be abandoned. The bearing of the new logic on the concept of substance is now clear.[3] Since relational logicians err in maintaining that the substance-attribute formula is unable to express some meanings, they are also wrong in holding that the concept of substance is inapplicable to some propositions. One may only assert that other relations and thus other con-

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[1]Cf. Sheldon, SSPD, 54-56.

[2]Cf. Burnham and Wheelwright, PA, 82.

[3]Lenzen asserts that "the logic of relations admits the possibility of the concept of substance." (Art. I, 152, 153).

cepts are more natural and consequently more useful.

A second neo-realistic criticism of traditional thought which has an important bearing on the concept of substance is directed against the theory of organic logic. Realistic objections to this organic method reduce to the contention that it amounts to skepticism. It is argued that organic logic makes impossible genuine knowledge of one proposition until all propositions are known,[1] and this is an impossibility for finite individuals. On the other hand, the actual advance of science has shown, it is contended, that some things may be positively known, and that knowledge proceeds from part to part.[2] Not only does organic logic make one's knowledge of parts within wholes incomplete, it asserts further that even what knowledge of these parts is acquired may be entirely false.[3] If an act is evil when judged from the standpoint of the part but good when considered from that of the infinite whole, judgments about good and evil cannot be reliable, for finite beings cannot gain this universal point of view.

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[1]Spaulding, NR, 422, Marvin, FBM, 93.

[2]Perry, PCI, 374-375, Marvin, ibid., 93-94, Spaulding, loc. cit.

[3]Spaulding, WAI, 162. Cf. Perry, ibid., 374, 376, Spaulding, Art. V, 160-161, 171-172, Montague, Art. IV, 299.

These criticisms of organic logic are valid only against an unnecessary, and probably erroneous, interpretation of absolutism. For even Hegel held that partial knowledge of the whole is after all knowledge, though it may be conditioned by further information.[1] There are some cases where further knowledge of wholes unquestionably alters that already gained about them. This was shown above in the discussion concerning analysis of material molecules.[2] Even though the theory of electrons made necessary a revision of some of the qualities ascribed to matter, other properties have remained the same. For example, the atomic weight, specific gravity, and fusing point of the elements making it up, were unchanged. Similarly, the theory of relativity developed by Einstein has altered many conceptions about the physical world, but it remains as true now as in the time of Newton that the apple falls to the ground and not off into space, and therefore that the knowledge represented by some of the factors in Newton's laws is still reliable. Not <u>all</u>

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[1]For example, he says that "Dasein [ist] die Einheit des Seins und des Nichts, in der die Unmittelbarkeit dieser Bestimmungen und damit in ihrer Beziehung ihr Widerspruch verschwunden ist, - eine Einheit in der sie nur noch Momente sind. . . ." (ENC, 89). Thus the simplest knowledge one may have of an object (Sein) is "aufgehoben" in the synthesis formed when new knowledge is gained. Yet it is still a "Moment," i. e. a definite element, in that synthesis.

[2]Cf. p. 106.

knowledge about the physical world has been undermined by Einstein.

While the organic theory of logic need not be discarded, there are, on the other hand, cases where it does not necessarily apply. Some single propositions, and some combinations of them, e. g., that two apples plus two apples make four apples, or that if $A<B$, and $B<C$, then $A<C$, are true, and probably will remain so, regardless of any further propositions that may be formulated. But the wide applicability of organic logic must still be conceded.

The assertion that organic logic is valid and in many cases applicable is thus another way of denying the realistic claim examined above, that analysis is exhaustive of all wholes up to the point which it reaches. But on the other side, the fact that some propositions seem to be true irrespective of other propositions that may be formed suggests that organic logic is not universally applicable. The possibility remains, therefore, that some, though perhaps not all, wholes contain substances which analysis cannot dissolve.

The attack by neo-realists on methods used by other schools is further illustrated in the rejection of internal and the advocacy of external relations. If relations are external the analytic method achieves added significance.

D. INTERNAL AND EXTERNAL RELATIONS

By the theory of internal relations is meant the belief that the character of a term is partially constituted by its relations, either through their permanent possession or through the changes induced when relations are acquired or terminated, or, that a term is united to its relations by a third reality arising beyond these two entities or from one of them. The Aristotelian doctrine of substance and cause has been translated into what is now called the theory of internal relations.[1] Consequently the rejection of internal relations by neo-realists is at the same time an explicit criticism and rejection of substance. Belief in external relations[2] means for the realist that there is no substantial reality which joins and holds together terms and their relations.

Internal relations are of two kinds according to Spaulding. Terms are either "constitutive" of each other, or else some mediating reality underlies them in such a way as to maintain a unity or connection between them.[3] A brief

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[1] Spaulding, NR, 37, cf. 38, 177.

[2] Marvin and Spaulding explicitly assert, Holt, Pitkin, and Perry imply, and Montague does not reject, the theory of external relations in the "Program and First Platform." Cf. Holt, et al., NR, 472-480.

[3] Spaulding, Art. V, 165, NR, loc. cit., Holt, et al., NR, 478n.

consideration of these two types of relations is necessary.

According to the constitutive theory of internal relations, "each term makes a difference to the other and, therefore, constitutes it, at least in part."[1] Those who hold to this view, declares Spaulding, conclude from the undeniable fact of relatedness that the related terms are mutually dependent.[2] This view of internal relations is to be rejected, say the realists, because it results in the infinite complexity of terms. If each term is determined by all the other terms and relations it loses its identity. Consequently, it becomes "most difficult if . . . not impossible to discover what a term is. . . ."[3] On the other hand, the very fact that terms are actually identified as such without all other terms and relations being identified presupposes that they are external to their relations.[4]

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[1]Spaulding, Art. V, 165-166.

[2]Ibid., 165. Montague holds that only subsistent terms in relation constitute each other, but that this is not true of existent entities. (The nature of existence and subsistence is treated below in chapter VII.) Even in the case of subsistent terms, he asserts, the fact of relationship only adds something to the terms but in no wise negates or changes the characters belonging to them before the relationship took place. Cf. WK, 367-368, 381, 370.

[3]Spaulding, ibid., 166, cf. 167, NR, 183, Marvin, FBM, 86-88, Perry, PPT, 319.

[4]Spaulding, Art. V, 167.

The "underlying-reality" theory of internal relations is likewise unsatisfactory for the neo-realist. This aspect of the theory requires that for every term and its relation there must be an underlying reality to mediate between them.[1] But there would then have to be a further relation to unite this relation or mediator and the first relation which has now become a term, and so on to infinity.[2] The theory of internal relations cannot escape this infinite regress, it is asserted.

But there is no reason why the theory of internal relations should not express the fact that identical terms may differ from each other when they enter into different relations. The theory of external relations emphasizes the intrinsic character of terms regardless of their relations, and there actually is a measure of identity in terms even though they change through relations. Hollands properly suggests that the solution to this problem lies in combining the views of Leibniz and Bradley.[3] By this he means that no terms are ". . . self-sufficient in such a way that they

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[1]Spaulding, Art. V, 166, NR, 38, 177.

[2]Spaulding, NR, 187-188, 180.

[3]On this question compare Leibniz, Monadology, 7, 9, 12, 13, and Discourse, 8, 14, with Bradley, Appearance and Reality, 25-34, 180-182.

contain within themselves all their relational destiny. . . ." as Leibniz had held, and that, on the other hand, they do not ". . . merge in a bare identity or wholeness which leaves no room for their specific differences,"[1] as Bradley had contended.

Bowne had argued for a position which amounted to a reconciliation of these two points of view before Bradley's work elaborating one of them appeared. For Bowne terms in relation are identities in change. There is nothing static.[2] Terms are forms of activity which retain their identity even when they are related to other forms of activity.[3] Such identity and difference, unity in variety and multiplicity, is "revealed in experience" alone.[4] It is an observable fact that at least some terms and their relations are internally related. This does not require that there be some transcendent and mysterious reality that sustains

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[1]Art. I, 465.

[2]MET, 19, 22, 23.

[3]Ibid., 43, 39.

[4]Ibid., 63, cf. 57, 61. A. E. Taylor comes essentially to this same conclusion, though he holds that the union of terms and relations occurs not in discursive thought but in the intuitive insights resulting from discursive thought. (EOM, 146-153). Cunningham argues that what is given in conscious experience is "not a mere congeries of discrete manys," nor a "non-relational manifold," but "a whole involving relations" (IA, 388-389).

the relationship. It is a fact immanent in conscious experience itself that terms and relations are internally connected.

Neo-realism must demonstrate that there is no such reconciliation between identity and diversity in conscious experience before its arguments against internal relations may be considered valid. This is a problem to be considered in chapter VI. As the argument now stands, there may be some internal relations. The infinite regress is denied by the empirical fact that identity occurs in spite of change within consciousness.

Further evidence that the infinite regress feared by the neo-realist does not actually occur, rests in the fact that the advocate of internal relations can state his view. There must, therefore, be terms which have a recognizable fixity of meaning. Even the believer in external relations usually understands what the internalist means by his theory. This is possible because in actual practice terms have a relatively determinate meaning regardless of their context. The internalist as well as the externalist may presuppose this state of affairs.[1] Thus the theory of internal relations does not involve such disastrous consequences as neo-

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[1]Sheldon, SSPD, 230.

realists believe.

The defense of analysis proceeds through a plea for external relations, i. e. a plea for the view that a term can pass in and out of relations without being modified in any way by such relationship. The following essentials in this argument may be indicated. External relations, asserts the neo-realist, are presupposed in their denial, for the identity of terms is necessary for all intelligible discourse.[1] In the second place, experience shows that the same term may enter into many different relations without prejudice to its character, or to the relations in which it already stands.[2] The fact that one can know an entity in some of its relations without knowing all of them argues further for the externality of relations.[3]

In answer to this first argument, it may be observed once more[4] that the identity of terms is not destroyed even by the theory of internal relations. There are undoubtedly

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[1]Spaulding, in Holt, et al., NR, 478-479 (2, 3, 4), cf. Spaulding, NR, 178, Art. V, 166-167.

[2]Holt, ibid., 472 (5), Marvin, in Holt, ibid., 473 (4, 5), Perry, in Holt, ibid., 476 (4), Pitkin, in Holt, ibid., 477 (1, 2), 478 (6), cf. Perry, PCI, 373.

[3]Perry, in Holt, ibid., 476 (5), Spaulding, in Holt, ibid., 480 (8), cf. Pitkin, Art. III, 462.

[4]Cf. supra, pp. 120-122.

many cases in which the second argument advanced here by the neo-realists holds good. The term "earth" has the relation "less than" when compared to the sun, and "greater than" when compared with the moon, but the fact that the term enters into or stands in the one relation does not affect its other relation. On the other hand, there are some cases in which this second argument is not valid. Oxygen related to hydrogen is a term certainly changed by the relationship.

The third argument for external relations adduced above contains some validity, but it likewise does not show the universality of external relations. This is the same problem that was considered in connection with the knowledge of parts within wholes.[1] One can gain some reliable information about the quality red when it is found in a given rose, without considering all the relations into which it might enter. But the intrinsic character of the quality could still be retained even if it did assume some internal relation.

There is an ambiguity in the realistic treatment of external relations which makes some difficulty. A tendency is noticeable to deal with simples or abstract entities while

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[1] Cf. p. 116.

defending the doctrine and then on other occasions to treat complex existents in the same way.[1] Thus Spaulding asserts the first implication of the doctrine of external relations to be the proposition that "both a term and a relation are (unchangeable) elements or entities."[2] Here he is clearly discussing subsistent simples, for existents are not "unchangeable," nor are they the "elements" of which complexes are made, except in a very broad sense. Existents are themselves complexes. On the other hand, it is common for realists to discuss external relations when the context indicates that existents or complexes are involved. A conspicuous example is the knowing relation.[3] The case for external relations is much easier to maintain in the realm of subsistence. But these realists seem bent on asserting its general validity. For this reason serious obstacles to its acceptance are encountered.

The result of this investigation is that there is evidence for some relations that are internal and some that are external. Neo-realists are chiefly concerned to deny the universality of internal relations,[4] and in this phase of

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[1]Sorley, MVIG, 216.

[2]Holt, et al., NR, 479.

[3]Perry, PPT, 319-320, Spaulding, NR, 41, 431.

[4]Spaulding, Art. V, 167, Holt, et al., NR, 33.

their thought one may readily share. But the argument advanced by some of them[1] for the universality of external relations cannot, in the light of this evidence, be allowed to stand.[2] There are clearly some relations that are internal.

If this be the case, analysts find some wholes which they cannot exhaustively interpret. Even if the parts, the relations between them, and the properties of the whole which the parts do not have, are specified, there is no explanation for the influence which the whole may exert upon these parts. The effort of neo-realists to escape the theory of substance which internal relations imply[3] is, there-

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[1]Holt (Art. I, 372, cf. COC, passim), Pitkin (Art. III, 422-424), Perry (Art. IV, 118, et passim; PPT, 319) seem to argue that all relations are external. Spaulding leaves the question open, though the weaknesses he finds in the theory of internal relations would prevent him from allowing that any relations were of this character.

[2]Cf. Macintosh, POK, 302.

[3]If terms are to some degree constituted by their relations or are uniquely bound to them, the concept of substance plays an important role. For if terms are constituted by relations in the sense that they possess their relations and thus are these relations, substance expresses the notion that a term has the potentiality of manifesting many relations. Substance is also necessary if the fact that terms are constituted by relations means that they are altered by their acquisition or termination of relations. The identity of a term through change rests in a substance that unites its successive states. Finally, if terms and relations are uniquely bound together by some third reality, the latter must be substance.

Whitehead says that ". . . the concept of internal relations requires the concept of substance as the activity synthesizing the relationships. . ." (SMW, 174).

fore, not successful. Analysis has indeed shown that one absolute and all-comprehending substance is untenable, for some relations are external. But if there are lesser substances they are to be found in the wholes which involve internal relations.

Further information about the significance of analysis for the concept of substance may be gained by considering the results of this method. But before proceeding to these results it is important to notice the realistic emphasis on mathematics.

E. LOGIC AND MATHEMATICS

The logic which realists adopt is of comparatively recent origin. Contemporaneous with the dominance of Aristotelian logic there has been an independent movement of thought during the last four hundred years in which the concepts of relation, event, happening, have played the dominant role.[1] It is this strand of thought which has recently been formulated as the logic of series or the science of order.[2] Neo-realists accept this type of logic preferring to substitute, as already indicated, "relational" for subject-predi-

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[1]Spaulding, NR, xvii.

[2]Ibid., 10-11.

cate propositions.[1] The chief interest of the realist lies in the relational proposition and not in the nature and character of terms.

This new logic is identified with mathematics,[2] for the propositions of logic are held to be formulae the terms of which are variables. Since logic requires mathematical method it deals with something more persistent than mere thought. Consequently it must be considered the science of being and not the science of correct thought.[3] Neo-realists meet the mathematical logician on his own ground and attempt to understand and interpret the universe from his point of view.[4] It may even be said that "the neo-realistic ontology is founded on symbolic logic. . . ."[5]

Though realists make extensive use of mathematical or symbolic logic there is no reason for supposing that they are thereby committed to a particular kind of metaphysics. Spaulding, to be sure, does make this assumption. In his

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[1]Spaulding, NR, 173, Marvin, Art. II, 51n, FBM, 228-229. Cf. Parkhurst, RLR, 6.

[2]Holt, COC, 3, Marvin, Art. II, 54-56, Spaulding, NR, 205.

[3]Holt, loc. cit., Spaulding, NR, 15, Marvin, ibid., 52-53, FBM, 221-223.

[4]Holt, et al., NR, 25-26.

[5]Ray, CNR, 1, 3.

last book, A World of Chance, he attempts to show that symbolic logic has a positive and definite significance for metaphysics.[1] Marvin and Holt seem also to imply the metaphysical reference of logic.[2] Specialists in symbolic logic, such as Russell and Sheffer, however, deny that it has any metaphysical significance of a positive character.[3] Russell goes so far as to say that from symbolic logic nothing can be inferred concerning the external world, not even the fact that there is a world.[4]

If mathematical logic had any decisive significance for metaphysics there would be more agreement about metaphysical views among those who employ it. There is in fact, however, a wide divergence between the metaphysical positions embraced by mathematical logicians. Perry denies objective

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[1]Cf. especially pp. 22-23, xiii.

[2]Marvin, Art. II, 53, Holt, COC, 1.

[3]Metz (PSG, II, 248) says that symbolic logic is ". . . eine sehr specielle Disciplin. . . , die mit der allgemein philosophischen Bewegung nur in loser Verbindung steht und deren philosophischen Bedeutung und Relevanz auch heute noch sehr umstritten ist. Es ist keinesfalls so. . . , dass hier die Sache der Philosophie selbst zur Verhandlung oder gar ihr Schicksal zur Entscheidung kommt. . . . Vielmehr handelt es sich in der mathematischen Logik lediglich um die Konstituierung eines neuen, bedeutsamen und mächtig auslangenden Zweiges am Stamme der logischen Wissenshaft. . . ."

[4]Cf. KEW, 41.

and ontological character to value,[1] Spaulding affirms it.[2] Russell is a thorough-going pluralist,[3] while Whitehead's philosophy of organism is monistic.[4] So far at least[5] it has not been shown that one definite view of the universe can be prescribed by symbolic logic.

It is necessary to observe, on the other hand, that a mathematical interpretation of reality may accompany any metaphysical view that is rigorously defined. The category of quantity or number is involved so soon as one begins to consider the "nature" of reality. The quality of being that is found has a numerical value. If there is being, it is a kind of being, and this kind is numerically distinct from other kinds. Furthermore, any assertions that are made about reality are numerically discernible from each other. Thus, a mathematical character attaches to one's thought of reality whenever it becomes articulate. But this is quite different from asserting that mathematics is finally determina-

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[1]PPT, 331-344.

[2]NR, vi, 496-507.

[3]Cf. AMA, 242, 394-402.

[4]Cf. PR, 10, 220, 80, 529-530, 531, 53.

[5]Stace considers symbolic logic "a mere intellectual plaything," the use of which has, up to the present, resulted in "nothing of real importance" (Art. I, 760).

tive of one's view of reality. It means only that the elements of reality are mathematically related.

Perhaps the truth lies, as Whitehead suggested in a paper read before the Eastern Division of the American Philosophical Association in December, 1936, in a harmony between the mathematical interpretation of first principles and the "functional genetic" interpretation advocated by Dewey. According to Whitehead's conception mathematics would be concerned with "the forms of succession" and not "the succession of forms." Reality might then be conceived as qualitied being in activity according to mathematical form. His conclusion that the ultimate interpretation of reality may rest with aesthetics indicates that absolute, rigorous, and hence mathematical, exactness cannot characterize one's final interpretation and that a harmony of all factors must be the ideal.[1]

One may conclude that relational or symbolic logic does not <u>require</u> a metaphysics in which the concept of substance is absent.[2] The fact, as shown above, that types of logic

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[1]Art. I, 184-186.

[2]Mead observes that in spite of symbolic logic "we still go on thinking in terms of what has been called the 'logic of things'. . . . That is logic built up on the inherence of certain qualities in certain substances. . . . If you continue to work in a world of things, I do not think that symbolic logic will be of any particular value. . ." (MTNC, 341-342).

which employ this concept can also perform the functions ascribed to symbolic logic, leaves the question still open as to whether the concept may be retained.

F. THE RESULTS OF ANALYSIS

Neo-realists contend that analysis dissolves or shows to be external ". . . those frame relations which might tie the universe together" and yields "an ultimate plurality of reals."[1] These results must be taken into account.

If analysis is the ultimate or even the chief method for philosophic inquiry a metaphysical pluralism is probable,[2] think the neo-realists. This follows from the externality of relations and the fact that cognition is not universal.[3] The second of these arguments is really a result obtained by an application of the first.

These ultimate reals in which analysis terminates are for neo-realism the neutral entities mentioned above.[4] Objects are events and events are complexes of qualities occupying certain points in time and space.[5] Each quality and

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[1]Hocking, TOP, 351.

[2]Holt, et al., NR, 33, Perry, PPT, 272.

[3]Holt, loc. cit., cf. 472 (2, 3), 476 (6).

[4]They are further discussed in chapter VII.

[5]Cf. Montague, Art. IV, 253-254, 263-264.

relation is analyzable into ultimate simples, which are thought to take the place formerly occupied by substance.[1] There is no substance which holds these ultimate simples together, else they would not be simple. They somehow get themselves arranged in complexes without the help of any further agency. The abstractness of such entities and their consequent inadequacy as final explanatory elements has already been noted. A metaphysical pluralism of some kind is indicated, however, by the fact that some relations are external.

It is further argued that the analytic method saves one from certain common fallacies, and especially from those which are committed by the idealist. The "fallacy of pseudo-simplicity," according to which the familiar is confused with the simple,[2] its sequel, the notion of "indefinite potentiality,"[3] and the "error of verbal suggestion," which results from an uncritical acceptance of the vague connotations which words often possess,[4] may be avoided by a care-

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[1]This follows from realism's explanation of the analytic method itself (cf. supra, 87-92) and the argument that relations are external.

[2]Holt, et al., NR, 12-14, Perry, PPT, 271.

[3]Perry, loc. cit.

[4]Holt, ibid., 18-19.

ful analysis of every concept thought employs, says the realist. Analysis also helps to guard against the "speculative dogma," by which it is meant that one all-sufficient proposition explaining everything must not be assumed by the philosopher,[1] and against the "fallacy of exclusive particularity,"[2] i. e. the assumption that a particular term in a given system belongs to that system alone.

So far as these fallacies are actually committed by the serious philosopher, analysis does afford protection against them. But this does not necessarily indicate the preëminence of analysis as the method for all philosophic inquiry. Any philosophic method would welcome the services of analysis to this extent.

Conclusions regarding the status of substance when the analytic method and the new logic are applied may now be drawn.

G. ANALYSIS AND SUBSTANCE

The following conclusions concerning the validity and applicability of analysis seem to be evident.

First, analysis is an important means of interpreting

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[1]Holt, et al., NR, 16-18.

[2]Ibid., 14-15.

experience, and may be relied upon to guard thought against vague, ambiguous, concepts and hasty assumptions. Secondly, though widely applicable, the analytic method cannot be made the ultimate method in philosophy because it leads to unwarranted abstractness. Thirdly, analysis is unsatisfactory as a final method because it is unable to account for the properties which wholes possess but which their parts do not. Fourthly, neo-realism does not succeed in showing through analysis that organic logic leads to skepticism, or that the substance-attribute formula must necessarily be given up, though it does show that other types of logic than the Aristotelian and the organic are valid, e. g. the logic of relations. In the sixth place, analysis has made clear that some relations are external, but the fact that other relations are internal limits the general validity of analysis as a method. Finally, the existence of some external relations indicates that analysis has shown reality to be pluralistic and not monistic.

These results have an important bearing on the concept of substance. In the first place, the impossibility of making analysis the final and ultimate method in philosophy leaves open the question of whether there are substances.[1]

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[1]Spaulding concedes, in spite of his emphasis on analysis, that "some of the entities of the universe may be substances. . . ," though he does not specify which entities he means. He is clearly more interested in the entities which are not "substances." NR, 389.

Secondly, since the properties which wholes have but which their parts do not, receive no adequate interpretation from neo-realists, the hypothesis that a whole is a substantial reality which conditions and is conditioned by its parts, remains reasonable. Thirdly, the existence of some relations that are internal is evidence that some kind of substance may synthesize relations. In the fourth place, the empirical fact that terms and relations are combined in conscious experience without losing their identity, suggests that substance may be of the nature of consciousness. Finally, the fact that some relations are external denies that there is one absolute substance, but allows that there may be a plurality of substances.

It is now apparent that the neo-realistic plan to remove the concept of substance from metaphysics has grave weaknesses. Whether the neo-realists are more successful in their attack on this concept when they actually apply the analytic method to fundamental metaphysical problems, is the question remaining to be answered. The first of these problems may next be considered.

CHAPTER V

MATTER[1]

In this chapter the problem is to establish whether neo-realists demonstrate the necessity for a complete rejection of material substance or for only a modification in it. With their careful adherence to "the unimpeachable truth[s] . . . of science,"[2] realists adopt the conclusion of physics that the material thing is no substratum in which qualities inhere, but a complex of qualities in relation.[3] The radical character of this proposal is appreciated by them for it is asserted that the history of philosophy has been largely dominated by the Aristotelian belief that the

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[1]It is consistent with realistic practice to investigate the possibility of substance in matter before considering whether it is present in mind, for mind is "homogeneous with the environment, belonging to one cosmos with it." (Holt et al., NR, 35, 475.) Cognition is "on the same plane" as happenings in the physical world (ibid., 33), the difference between knower and known being the same as that between bodies, colors, or any other grouping of things (ibid., 34). There is accordingly no a priori reason for treating mind first. On the other hand, the nature of mind is more easily understood after its environment is considered.

[2]Perry, PPT, 272. Cf. Holt et al., NR, 36-42.

[3]Spaulding, NR, 42.

physical thing is identifiable with a substratum.[1]

The neo-realistic attack on material substance begins with the assertion that the physical bodies to which common sense holds, are reducible to simpler elements. Belief that this reduction is valid constitutes an implicit argument against the cruder form of material substance. It is therefore necessary to observe the character of this analysis.

A. ELEMENTS OF MATTER

Matter may be broadly defined, says the realist, as that aspect of being which is made up of complexes "occupying both space and time."[2] It is that province which contains spatial and temporal properties on the one hand, and "space-time-filling properties" on the other. Yet it is the fact of space-time occupancy which invests an object with material or physical character, not the "that" which occupies. Physical bodies are thus "the distinct individuals of the genus "matter.""[3]

Though common sense and philosophical tradition may have held that these "distinct individuals" were lumps of simple substance they are "capable of being analyzed into more prim-

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[1]Spaulding, NR, xvi, xvii.

[2]Perry, PPT, 52. Cf. Marvin, FBM, 232.

[3]Perry, loc. cit.

itive terms."[1] Natural sciences, such as physics and chemistry, have done much in recent years[2] to reduce matter to such simples as leave "no residue . . . of little material brickbats."[3] It is taken for granted that the cells and colloidal particles making up living organisms as well as the particles which constitute inorganic objects such as blocks of wood are composed of molecules.[4] Atoms must be assumed, the scientist shows, in order to explain the chemical behavior of these molecules.[5] Experiments indicate that probably all the elements are composed of electrons.[6] The electron itself is "a field of force," and as such it is "a three-dimensional manifold of elements which are intensity points forming an ordered series."[7]

The fundamental unit of matter is thus a manifold of elements or qualities in relation. Wherever these units are so related as to form a larger whole, there are properties to

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[1]Perry, PPT, 310. Cf. Marvin, FBM, 232, Spaulding, Art. V, 239.

[2]Marvin, Art. II, 86.

[3]Holt, Art. I, 368-369.

[4]Spaulding, Art. V, 243, 229, 239.

[5]Ibid., 225-227, 238, 239. Cf. Montague, Art. IV, 265.

[6]Spaulding, ibid., 238. Cf. Marvin, Art. II, 86, Holt, COC, 118.

[7]Spaulding, ibid., 239.

be found which are not properties of the parts but of the whole.[1] An atom of hydrogen would have refractive, rotatory, and absorptive powers but these would be lacking to the individual electrons constituting it. A molecule of sulphuric acid would in turn have properties which neither an atom of hydrogen, sulphur, nor oxygen would have. Physical complexes are cases of "creative synthesis," for they are more than the sums of their parts.[2]

It is probable that the cruder forms of material substance are justly ruled out by neo-realists. Matter is not one block of extended substance from which particular physical objects are hewn. The relativity of measurement to the frame of reference employed by the measurer, and the fact that both the objects measured and the instrument of measurement change during the process of measuring, indicate that there is no inert, fixed, or solid, material substance in physical things. If there is such a reality there is no way of determining it.[3] Nor can matter be considered an aggregate of indestructible atoms, some of which become related in such fashion as to form the seemingly substantial character

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[1]Spaulding, Art. V, 239.

[2]Ibid., 240, cf. 239.

[3]This conclusion follows from the discussion in chapter III. Cf. supra, pp. 66-68.

of a given material object. The reduction of atoms to fields of electrical force, and the discovery within them of empty space, make it plain that they cannot be solid units of passive material stuff.[1] Recent developments in physics are rather generally recognized to have made necessary the rejection of material substance in these senses.

The further question of what constitutes the atom leads into more controversial territory. Its electrical character is widely accepted,[2] but the significance of this view for material substance is much in dispute. The neo-realistic argument that the fundamental units of matter are manifolds of qualities in relation is advanced with the further assertion that there is no substratum in which these qualities and relations inhere. Thus the concept of material substance is rejected altogether and that of a complex of qualities and relations is substituted for it.

Whether the criticisms are valid which realists level at substance as an aspect of the fundamental units of matter, must now be inquired. Though it is largely true, as Hasan points out,[3] that neo-realists presuppose the absence of substance, it must be observed that some explicit arguments

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[1]Cf. supra, pp. 70-74.

[2]Cf. supra, pp. 70, 72, 73.

[3]Cf. ROR, 166.

against the doctrine are also presented.

B. CRITICISMS OF MATERIAL SUBSTANCE

Neo-realists understand by substance the alleged presence in unitary complexes of "an entity . . . over and above their qualities, properties and relations." Consequently that which is rejected is "the notion that the unity of the thing substands, underlies, transcends, or is otherwise concealed beyond or within its manifestations."[1] Apparently realists deny that there is a ground of qualities and relations anywhere outside these qualities and relations themselves.

Sources for the bad habit of thinking in terms of substance are not hard to find, thinks the realist. The first one lies in the common willingness to impute to things the structure which belongs to knowledge of things. Names, e. g. "Caesar," "gold," "I," "you," are to the knower "symbols for systems of expectations."[2] Substance arises from the "primitive and inveterate habit"[3] of ascribing to these objects a "forward reference" or "determination by the future" such as that which alone belongs to an organism endowed with a nerv-

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[1]Perry, GTV, 403. Cf. Marvin, FBM, 174.

[2]Perry, ibid., 404, cf. PPT, 66.

[3]Perry, GTV, 403, cf. PPT, 67. Holt, COC, 62, 64, 135.

ous system.[1] A second source for the notion of substance is "the psychology of self-knowledge."[2] The sense of alertness, tension, effort, or expectation which is characteristic of the self is ascribed to external objects. When the self anticipates B of A it imputes to A an anticipatory relation to B, a sense of activity and power that is regarded as A's potentiality or secret inwardness.[3] Substance, it is believed, results from taking self-activity as the model for thought about external objects.[4]

Undoubtedly this explanation for the psychological origin of the concept of substance has much truth in it. However, the origin of a doctrine never determines its meaning and validity. The fact that the idea of self had its origin in such notions as breath or wind, does not in itself prove that there is now no self. So the idea of substance need not be rejected, nor retained, because its birth is alleged to be humble. The problem is to determine its validity whatever its origin.

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[1]Perry, GTV, 405.

[2]Loc. cit.

[3]Loc. cit.

[4]Some thinkers outside the school of neo-realism also call the concept of substance in question because of its "subjective" origin. Cf. Cassirer, SF, 210, Loewenberg, Art. II, 12, Parkhurst, RLR, 42.

It may be noted, however, that in rejecting the model of self-activity as the guide for thought about external objects, neo-realists become obligated to justify some other manner of conceiving them. If the habit which the mind most readily adopts is indefensible the case for some other one must be clearly demonstrated.

The first direct criticism of material substance by neo-realists is that it illustrates the fallacy of pseudo-simplicity.[1] To believe in a material substance is to mistake familiarity for simplicity, that is, the seeming simplicity of an unanalyzed complex is confused with the real simplicity attained through analysis. Whereas substance "endows the object with an undivided unity" analysis reduces this unity "to many terms in relation."[2] Science has been outgrowing the doctrine presumably because it was vague and incompletely analyzed.[3] Since it is a case of inadequate analysis substance tends to beget "a naive and premature intellectual satisfaction" and thus to become "an easy way of shirking intellectual responsibility."[4]

In reply to this criticism, one may readily admit that

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[1]For the nature of this fallacy cf. Holt et al., NR, 12-14.

[2]Perry, PPT, 66, cf. Art. IV, 127.

[3]Marvin, Art. II, 90.

[4]Perry, GTV, 406.

any unit of what was traditionally, or is now, called material substance is capable of further analysis. No unit of matter could be understood until all of its parts and properties were identified, and their relations indicated. For example, an atom of sodium can be understood when its volume, specific gravity, mass, attractive power and other properties are noted, and when its electronic constituents and their properties, as well as the relations between these parts and properties are specified. Such an analysis will terminate, says the realist, in a congeries of points in space, instants in time, relations between these points and instants, and qualities occupying space and time.[1] Explanation of any object involves its analysis, as neo-realists maintain.

But the question still remains, assuming that this is so far a true analysis of any given unit of matter, whether substance in every sense is thereby eliminated. As noted in the last chapter, explanation of wholes through their parts leaves out of account the unique properties of those wholes.[2] Neo-realists either ignore these properties or else label them "non-rational." Whatever unit of matter one may choose for an illustration, whether electron, atom, or molecule, regardless of size, it must be considered a whole, of which

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[1]This view will be further explained below (cf. pp. 167-181).

[2]Cf. supra, pp. 108-111.

there are unique properties. This follows from the fact that units of matter are fields of force which vary when in contact with other fields of force, but which also maintain a measure of identity or integrity.[1] The terms and relations to which neo-realists reduce these units of matter do not themselves possess the attributes of force. Until the neo-realist explains these properties of the whole he has no right to assert that there is no material substance. It may consist in these factors that are more than the qualities and relations which as parts make up the given unit of matter.

A second criticism which neo-realists make of material substance is that it is an "indefinite potentiality."[2] Since the precise nature of a substance is undefined "it is deemed capable of anything and everything."[3] Science constantly finds it to possess "unexpected properties." Thus it may as reasonably be endowed with "intelligible force" as with "physical force," and no one can foresee what further powers it may in the future reveal.[4] Such diverse and contradictory views as materialism and occasionalism, Spinozistic monism

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[1]Cf. supra, pp. 72-74, 77.

[2]Perry, PPT, 69.

[3]Perry, GTV, 406.

[4]Perry, PPT, 69. Cf. Marvin, FBM, 178.

and Leibnizian pluralism have resulted from this indefinite character of substance.[1]

So far as this argument is a criticism of substance because the latter is vague and "indefinite," it may be granted validity. There is no sense in postulating substance if there exists no clue as to what it is that is postulated.[2] A thing, and hence substance, cannot even be without being in some determinant way, and as soon as the determinate character of the thing is mentioned, qualities and not substance are under consideration. Thus it seems impossible to divorce the "that" from the "what" of a thing.[3] The thing is in some sense its qualities and there is no use in thinking of a vague and indefinite something beyond or beneath them.

Yet if this is a criticism of substance as the seat of potentiality some rather serious complications arise. If there is no potentiality beyond the qualities and relations of a given physical object, say an electron, which accounts for the fact that these qualities and relations move as a unit in a certain orbit, or become joined to other qualities and relations so as to produce an atom, then this potentiality must rest in the qualities and relations themselves.

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[1]Marvin, Art. II, 90.

[2]Cf. Leighton, MAC, 187.

[3]Taylor, EOM, 132.

They must themselves originate their own motion, and be able to assume and to terminate relations alone. This assigns a new and heavy burden to qualities and relations. Whether they are able to bear it will be considered under the heading of identity.[1]

The third criticism of material substance may really be considered an aspect of the second. It holds that the relation between a substance, if there were such, and its properties would be unclear. "No direct relation of necessary connection" is to be found. There is only an "arbitrary" relation between them.[2] Since substance is assumed to be distinct from its attributes the manner in which it is related to them becomes problematic.[3] For example, how are "yellowness," "malleability," and such properties related to the substance "gold"?[4]

This is indeed a true difficulty in the concept of a substratum beyond attributes. If substance is distinct from its attributes, there would seem to be a need for some relation to join the qualities to their substance. But to assume such a relation is to raise the problem of what status

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[1] Cf. infra, pp. 167-181.

[2] Perry, PPT, 67.

[3] Ibid., 69.

[4] Ibid., 67.

this relation enjoys, and how it is related to the substance and to the qualities. On the other hand, if substance is not distinct from its attributes, there remains no reason why it should be assumed at all. It is the qualities in that case. If the concept of substance is retained it must be considered immanent in the attributes, but not exhaustively defined by them.

The defender of substance may admit the difficulty of explaining this relationship but go on to assert that other and more serious problems arise when substance is rejected altogether. Without some theory of substance two seemingly insurmountable difficulties present themselves. In the first place, there would appear to be no way to account for the element of permanence in change. Secondly, the principle of identity or individuality would not be satisfactorily explained. Substance can perform these functions.[1] It would be simpler to accept the mysterious fact that qualities are related through substance than to fail in the explanation of these other two fundamental notions. Whether neo-realists give an acceptable account of the latter remains to be observed.

As a fourth argument against the doctrine of substance,

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[1]The necessity for retaining these two historical meanings of the concept of substance is elaborated below. Cf. pp. 167-186.

neo-realists point out that there is no empirical evidence for it. "No residual substance to be called 'Matter'" can be discovered when a given material object is analyzed.[1] Experience does not reveal a "thing-in-itself,"[2] for when an object, e. g. a table, is robbed of its qualities, such as color, hardness, weight, and other discernible properties, it becomes nothing at all.[3] To suppose a system of entities beyond what are perceived is gratuitous. The phenomenal and noumenal are identical.[4] Realists have "a strong aversion" for "inaccessible universes" and "substances," but sympathize rather with the "trend . . . toward identifying reality with the elements, processes, and systems of experience."[5]

It is of course true that material substance as such is never experienced. But this fact can at best be only a weak argument against it. Because the center of the earth has never been perceived one need not and does not conclude that there is no center. A "center" is assumed in order to account for the earth's behavior. It would be reasonable to assume a substance to account for the behavior of a material

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[1]Holt, COC, 131.

[2]Ibid., 128.

[3]Marvin, FBM, 174. Cf. Perry, Art. IV, 103.

[4]Pitkin, Art. III, 433-434. Things are "what they are known as," to use James' phrase (PRA, 50).

[5]Perry, Art. IV, 103.

particle, even though it had never been experienced. The fundamental problem is to determine whether the behavior of a material particle can be accounted for if it is assumed to be only a complex of qualities and relations. If the concept of material substance is to be rejected it must be more because it serves no necessary function than because it lies beyond experience.

While all knowledge must be conditioned by sense experience it is far more than the mere recording of such experience. There are also factors of interpretation, inference, and prediction in it. The missing premises of a logical argument are not perceived but inferred. Eclipses are predicted and earthquakes are explained through reference to causes that are never perceived.[1] One may be said to "know" a substance in the sense that it is required by reason to explain what is given in sense experience. Yet, care must be taken to use these supplementary factors of reason sparingly, and in this respect the present criticism constitutes a just warning. Reason must not be allowed to fabricate all sorts of "unknowns." It must be limited to those conclusions which the facts of experience absolutely require.

Still another reason for rejecting material substance according to the realist, lies in the fact that the status of

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[1]Burnham and Wheelwright, PA, 247.

space is rendered ambiguous by it. Space cannot be itself a substance. If space were one great container, the things within it, the earth, stones, animals and what not, would have to be its attributes, and this they obviously are not. And if space be conceived in terms of points, what would the attributes of points be?[1] On the other hand, space cannot be an attribute of so-called material substance, for it is the "other" attributes of substance which are in space. Thus, an object's mass, motion, impenetrability and other qualities or attributes are in space.[2]

Certainly the doctrine of material substance does interfere with the status of space if the latter must be real. Hence the validity of this argument rests upon the validity of the case for space as real. Realists, however, assume the reality of space without proof, and consequently this criticism of substance may be passed over.[3]

A final reason for rejecting the doctrine of substance is that its function has been absorbed by the theory of relations. Neo-realists employ "the notion of <u>relation</u> in

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[1] Marvin, FBM, 174-175.

[2] Cf. Perry, PPT, 51-53.

[3] It may be noted that if space were phenomenal, i. e. if it were a form according to which the mind construes physical objects, a rule according to which qualities are ordered, the problem of the relation between substance and space would not arise.

place of the notion of substance,"[1] for the latter is "a vestige of primitive thought. . . ."[2] Whereas things were more evident to men in their intellectual childhood, with the advancement of scientific learning relations between things have assumed the greater importance.[3] In fact the progress of modern science has been "due mainly to a substitution of the category of relation for the category of substance."[4] If substantive terms are admitted at all "they stand for relational systems of manifest properties. . . ."[5] For example, a color is to be explained as "a function of many things" and not as an essence or an aspect of one.[6]

At this point Montague disagrees with other members of the school and asserts in effect that substance still performs the function of helping to distinguish qualities from relations. While qualities are "obviously relational" they are thought of "as the private attribute or predicate . . . 'inhering' as an adjective or accident in the body as its

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[1]Perry, PPT, 308.

[2]Marvin, FBM, 175.

[3]Ibid., 175, Art. II, 90, 91.

[4]Perry, GTV, 406.

[5]Loc. cit.

[6]Cf. Pitkin, Art. III, 463.

substantive or substance."[1] Such a quality as "shape" is "a dyadic relation," which means that it is the surface of contact which a body directly sustains with its environment. "Relations are only recognized as such when they are at least triadic. . . ."[2] "Distance" is thus a third or mediating entity between two bodies.

One may doubt, along with Montague, whether the category of relation can "replace wholly the older notion of substance."[3] Of course if no relations whatever were recognized, save that of substance and attribute, a Leibnizian monadology would result.[4] But it is difficult to avoid the conclusion that this ". . . étrange phobie des substances fait suspendre en l'air toutes les relations en leur enlevant les termes sur lesquels ils s'appuient."[5] Unless there is some sense in which relations and qualities "belong" together it is impossible to explain how the nature or identity of a thing is to be thought.

At any given moment only part of a thing's, e. g. a pen-

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[1]CSD, 84.

[2]Ibid., 83.

[3]Sheldon, SSPD, 206.

[4]Whitehead, CON, 150.

[5]Kremer, NA, 302.

cil's, relations are evident.[1] As the pencil lies on the desk one may give a relational definition of it by saying that it is that which is "to the right of" the blotter, "above" the desk, "excluding" other physical bodies, "exerting so many ounces pressure" on the desk. But some relations of the pencil which truly constitute it a pencil are not present at the moment under discussion. The relation of "marking a line on a page" or that of "creating" a message to another person beside the writer are not present, and these are what justifies one in calling this complex a pencil. To call a thing its relations would thus result in a truncated definition of it, for only a few of those relations could be enumerated at a given moment. Apparently some provision must be made for joining the relations (and qualities) which a thing manifests at a given moment with those it manifests at another.

The realist might retort that no theory can define a thing by all its attributes, for nothing ever manifests all its attributes at once. This is true, but a theory of substance would supply the element of potentiality which would make the origin of future attributes plausible. It would make the connection between the attributes present at one moment and those at another more understandable.

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[1] Cf. Taylor, EOM, 136.

If, on the other hand, relations are to take over this function of substance, they must be able to identify themselves with each other from moment to moment, thus presenting "thinghood" in any given object. But such a character is nowhere ascribed to relations by the neo-realist. They are merely said to be given in certain conjunctions at different moments. The continuance of association characteristic of some and the discontinuance characteristic of others is not explained. It seems questionable, therefore, whether the concept of relation has, or ever can, supplant that of substance. Certainty about this issue can, however, be attained only after the realistic theory of identity has been examined.[1]

These criticisms of material substance have, it appears, successfully shown that substance as an inert and inconceivable support of qualities and relations, but which is still distinct from them, must be rejected.[2] The thing does seem to be its qualities and relations. But in adopting this conclusion neo-realists are forced to show that the functions of substance, viz., potentiality, identity, permanence, activity, can be absorbed by qualities and relations. If it

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[1]Cf. infra pp. 181-186.

[2]Leighton points out that it may be doubted whether any philosopher ever actually held such a view as this. MAC, 189.

can be shown by realism that qualities and relations are adequate to the task of assuming these functions, all forms of substance will need to be given up. But if realists fail in this, justification for a kind of substance which is somehow immanent in its qualities and relations, but is still something more than they, will be afforded.

Before inquiring what disposition the realist is able to make of the traditional functions of substance, it is necessary briefly to examine the exact nature of qualities and relations. What functions they can perform will be more evident after their character and status is observed.

C. THE STATUS OF QUALITIES

Whatever the precise character of a quality or of its distinction from a relation may be, it does not derive from the mind that knows it. ". . . Sensible qualities . . . possess an inherent and inalienable character of their own."[1] Accordingly, "the thing transcends the thought . . . and possesses the qualities and characters which . . . knowledge reveals."[2]

Neo-realists have a peculiar interest in maintaining

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[1]Holt et al., NR, 35, cf. Holt, Art. I, 313.

[2]Perry, PPT, 312.

the objectivity of both primary and secondary qualities,[1] for it makes more reasonable their intrinsic character. If they possess an "inalienable" character of their own they would seem more capable of assuming the functions of substance. The need for a material substance, or bearer of qualities, tends therewith to be obviated.

The objectivity of primary qualities is generally accepted by realists. Their "reality," i. e. objectivity, is "vindicated indirectly as well as perceptually."[2] The physicist goes, not to the epistemologist but to nature itself for the true character of things.[3] The "fundamental physical properties" such as "latitude, longitude, shape, date, motion"[4] belong to the physical manifold itself. They are partly spatial and partly temporal,[5] consisting of points and instants, themselves indefinable, standing in certain rela-

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[1]It may be noted that the objectivity of qualities is assumed and not argued by realists, beyond an appeal to common sense. Cf. Macintosh, POK, 248, Hasan, ROR, 191.

[2]Montague, Art. IV, 299.

[3]Marvin, Art. II, 88. Marvin adds that the physicist has not yet been able to say exactly what the primary qualities are (ibid., 89).

[4]Perry, PPT, 52-53. Cf. Spaulding, Art. V, 196-197, Holt, Art. I, 369.

[5]For the realistic view of space see Spaulding, NR, 451-452, Art. V, 182-188; for that of time, see Perry, PPT, 235, Spaulding, NR, 213, Art. V, 190-193, 223-224.

tions. Each body at every instant occupies, or rather is, several points in space related in particular ways.

Secondary qualities as "space-time-filling" are likewise objective. Such properties as color, temperature, sound, taste, derive their "physical character" from their relation to the fundamental or primary qualities.[1] In fact the distinction between primary and secondary qualities is "accidental and not logical,"[2] for both "enjoy the same ontological status."[3] Secondary qualities are "on the objects" just as they appear to be.[4] It is "obvious" that the tree is green and the cloud gray, and to say that the forest is not green when there is no one there to perceive it is "ridiculous."[5] Even Montague concedes that these qualities are "as objective as they seem,"[6] though in his earlier writings their objectivity was for him plainly an insoluble problem.[7]

Undoubtedly there is, as realism claims, an important objective element in both kinds of qualities. Even Berkeley

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[1]Perry, PPT, 52-53, 277, 324, 310, Art. IV, 128.

[2]Holt, COC, 138-139, Art. I, 313, 314.

[3]Holt, COC, 134.

[4]Ibid., 148, cf. Art. I, 354. Cf. also Marvin, FBM, 193.

[5]Holt, COC, 139.

[6]CSD, 85, cf. WK, 272.

[7]Art. IV, 299.

admitted that their source lay in a stimulus external to the finite knower. There is at least an objective "power," as Locke said, which produces in the moment of perception primary and secondary qualities.[1] "These thrills in our organisms we call colors, sounds, and so on, express the natures of their objective determinants"[2] whatever one's theory about qualities may be. At all events, a quality is a prediction that if one behaves in a certain way toward an object certain results will eventuate.[3] Thus the weight of an apple is what would be registered if it were put on the scales, its shape would be the roundness experienced by the fingers when touching it and by the eyes when seeing it. Qualities do have this objective reference. One may know that true qualities are discovered when repeated prediction yields the same result.[4]

But there are serious obstacles in the way of considering qualities <u>as qualities</u> independent of and objective to the knowing mind. In the first place, the problem of error becomes an insurmountable difficulty. Realists have wrestled persistently with this problem but have not yet solved it

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[1]Cf. Leighton, MAC, 188n.

[2]Pitkin, Art. I, 210-211.

[3]Lewis, MWO, 140.

[4]Cf. Cassirer, SF, 274, Lewis, ibid., 125, 126, 133.

satisfactorily. The assignment of error to the realm of subsistence raises more problems than it solves, for the relation of subsistence to existence is by no means clear. On the other hand, if error is considered a wrong response, the problem is merely restated or else it receives a subjective reference which is inconsistent with realistic premises.[1] Secondly, the supposedly autonomous and intrinsic character of qualities would seem to indicate that one quality could go on existing without the other.[2] How the volume of an object could exist without its weight is not evident. The interdependence of many qualities is a patent fact.

If, therefore, the doctrine of substance is given up, the entities which assume its function must be "powers" that accomplish certain reactions in those who perceive them. Such a view of qualities would really make it easier to believe that the functions of substance could be adopted by qualities. But realists reduce "powers" to simpler terms and relations, thereby discarding the advantage such a conception might offer.[3] Whether simple terms and relations can adequately replace the concept of substance becomes a further

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[1]For further discussion of this difficulty see pp. 285-287.

[2]Hasan, ROR, 191.

[3]Perry, PPT, 71-72, 263, Art. IV, 104.

question to be answered.

The possibility of distinguishing between qualities and relations may now be considered.

D. QUALITY, MEASUREMENT, AND RELATION

There is a strong inclination on the part of some neo-realists to believe that the properties or qualities of an object can best be expressed in measurements or quantities. The result is that qualities tend to merge with relations. Relations are said to be more fundamental than qualities, so that in the development and refinement of thought the categories of substance, quality, and relation represent three successive stages.[1]

Science, says Holt, has the "best empirical evidence" for reducing "all qualitative differences to different arrangements of elements which are alike in quality."[2] Therefore quality proves to be no "ultimate category of natural science. . . ."[3] Secondary qualities, such as colors, are

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[1]Perry, PPT, 308n, 310.

[2]Holt, Art. I, 339, 340. For a thorough consideration of this problem see Hartshorne, PPS.

[3]Ibid., 329. Holt does not seem quite so certain of this conclusion at another point (cf. COC, 161-162).

definable in non-qualitative terms.[1] "Roughness" is a succession, i. e. a quantity, of taps perceived through the sense of touch.[2] Heat, light, odor, and whatever other qualities are radiated, depend for their intensity upon their nearness to the center of radiation,[3] and hence they may be defined as quantities of energy.

Primary qualities are likewise quantitative formulae or ratios. Mass is <u>really</u> "the fixed ratio of acceleration which a body possesses in relation to each other body or to some standard body."[4] Motion may be defined as "a definite relation to space and time of something which occupies them jointly."[5] Velocity, the rate of motion, is the ratio between the quantity of space traversed and the quantity of time consumed.[6] Energy may be called "a constant relationship or proportion of variable terms . . . [which] are func-

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[1]Holt, COC, 107. Montague agrees with Holt that differences in intensity of vibrations account for differences in the intensity of colors, but denies that such differences account for differences between qualities. Cf. Holt et al., NR, 480.

[2]Holt, Art. I, 343.

[3]Pitkin, Art. III, 446, cf. 463-464.

[4]Perry, PPT, 58, 61, 62. Cf. Holt, COC, 157.

[5]Perry, ibid., 61, Marvin, FBM, 232, Spaulding, Art. V, 195-196.

[6]Perry, ibid., 56, Spaulding, ibid., 205-209.

tions of space and time or of properties that occupy them. . . ."[1] Supposition that there is anything more to these qualities than mathematical relationships is either "an antecedent play of the imagination or a speculative afterthought."[2]

According to this view the physical world is a system of relational constants, a set of quantities in proportion. "Most every physical term one can mention" is "definable by an equation."[3] Properties of physical objects "turn out to be mathematical relationships."[4] In fact, physical science is "tending to become altogether a science of exact measurement and mathematical explanation."[5] Physical things may be regarded as "relational complexes."[6]

The critic of realism may agree that there is no harm, and perhaps much profit, in formulating a relational or quantitative definition of qualities. Solubility of a lump of sugar may be considered its reaction, i. e. its relation,

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[1]Perry, PPT, 60.

[2]Ibid., 61.

[3]Marvin, FBM, 238.

[4]Loc. cit.

[5]Marvin, ibid., 239. Cf. Perry, GTV, 406.

[6]Pitkin, Art. III, 463.

to water; its weight the relation of attraction to the earth; its whiteness the relation to a normal eye or to other colors. But the fact that such definitions are possible need not mean that qualities are thereby read out of court.[1] It merely emphasizes that they have a relational or quantitative reference, and never act in their own right, but always as correlates of relations. They are terms which it is sometimes practical to use in a sense other than that of mere relation.[2] Qualities may be known by the relations they assume but this does not mean there is no justification for holding to qualities as separate entities. To say that all qualities are really relations is "to blur an indispensable distinction in meaning."[3]

Pitkin rightly points out that quantity, and hence relation, is logically posterior to quality,[4] for quantity means nothing if not some kind of quantity.[5] There is a cer-

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[1]Montague agrees on this point (Art. I, 121).

[2]Neo-realists as a group do, of course, recognize that relations imply or presuppose terms. But the conclusion that all qualities are ultimately reducible to non-qualitative or neutral terms and relations raises the question of how the undoubted qualitative novelties in evolution arise. Again, the problem of individuality would, on this theory, become difficult to solve.

[3]Drake, Art. I, 18. Cf. Eaton, ST, 130.

[4]Art. III, 449.

[5]Burnham and Wheelwright, PA, 206.

tain absurdity in reducing all qualities to relations and thus declaring, as Holt does, that being is in the last analysis, of one kind. If being is of only one kind it would be impossible to understand what this one quality or kind was, for a quality enjoys the character that it has by distinction from something else, and there would in this case be nothing else.

Haste must be made to recognize, however, that another, and perhaps more important, strand of thought in neo-realism retains ultimate qualitative distinctions. Montague, as already noted, holds that qualities are "dyadic" relations whereas relations are "triadic" and consequently not identifiable with qualities.[1] Spaulding urges that realism can accept "no one quality . . . to which all other entities are reducible" but must hold to "an irreducible plurality of . . . kinds."[2] Marvin comes essentially to the same conclusion when he asserts that in spite of much continuity in reality each existent is a case of some element of spontaneity and discontinuity.[3]

From this investigation it appears that the functions of substance are, according to some realists, to be taken

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[1]CSD, 83-84.

[2]NR, 435.

[3]FBM, 148-149.

over by relations. According to others they are to be assumed by both relations and qualities. This latter alternative seems to be the more plausible. The problem henceforth becomes that of determining whether the material thing is no more than a complex of qualities in relation, that is, whether the functions once ascribed to a material substratum may now be performed by qualities and relations.

Chief among the problems that must be solved by any thinker who renounces substance is, as noted above, that of identity. He must show how one material "thing" is to be distinguished from another if its qualities and relations do not "belong" to a substance, and how the thing at one moment is identical with itself at another though some changes have taken place. These issues may be discussed respectively as the problems of individuality and of permanence.

E. INDIVIDUALITY AND IDENTITY

If there is no substratum in which qualities inhere, identity must rest with the qualities and relations themselves. Perry makes this clear when he objects to calling a thing "the sum of its attributes" since an "it" or "core" is thereby presupposed. It is less misleading to call the thing a complex of qualities and relations.[1] The common ar-

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[1] Art. XII.

gument that properties or qualities must be properties or qualities of something and hence of a substance,[1] is thus set aside as invalid. Things are "made up" or "defined in terms of" attributes or qualities.[2]

The problem of identity receives some light from the fact that although qualities do not belong to substances, they do belong in some cases to each other, to events, and to relations.[3] There may be "disembodied qualities,"[4] but for the most part they "belong to something."[5] For example, the properties of temporality and irreversibility may have in common the further quality or property of being serial. An event may possess the property of being fast or slow. Relations have such properties as symmetry or asymmetry, transitivity or intransitivity.

Since qualities are always found in combinations or clusters, some types of which are more frequent than others, neo-realists are right in pointing out this dependency. For example, red is always discovered as the red of a rose, a

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[1]Cf. Verda, NRLS, 109-110.

[2]Perry, Art. IV, 109.

[3]Spaulding, WOC, xvi-xvii.

[4]Spaulding, NR, 389.

[5]Spaulding, WOC, xvi.

book, or some other group of qualities.[1] If the cohesion of these qualities were of such an intimate character that it yielded an element of individuality that was more than the sum of the qualities there would be ground for ascribing substance to the complex.[2] But such a degree of dependence is just what realists are concerned to deny.[3]

The material object is according to neo-realism only a complex of qualities and their organization. It is composed of independent parts none of which is ponderable, ponderability being a quality which exists in the organization of parts.[4] Just as a word is its letters and an organization which means more than the letters, so a physical thing is the qualities and their configuration.[5] The pattern or configuration is "some sort of a unifying relation,"[6] but it is not organically related to its elements. Unity or individuality, it seems, rests in the "configuration" of qualities.

Another way the individuality of a thing may be conceived according to the realist, lies in "the systematic

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[1]Hasan, ROR, 310, Loewenberg, Art. II, 17.

[2]Loewenberg, ibid., 12.

[3]Cf. Perry, Art. IV, 109.

[4]Holt, Art. I, 369, 340.

[5]Perry, Art. XII, 300.

[6]Perry, GTV, 403.

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character of its manifestations."[1] A thing is a system of qualities, a region of space "marked by some distinguishing character that remains unchanged through time."[2] Qualities may be perceived as members of a system that "stands quite distinct from other systems and forms what we may call a thing."[3]

Roots of individuality are present in the account so far presented. It would be useful in attempting to distinguish one thing from another to know that some qualities belong together and that a pattern, configuration, or system is discernible in groups of qualities. But such a conception of individuality leaves fundamental issues still unclarified. It remains to show why the object gives the impression of being a unified whole instead of a loose aggregate, and why objects function as wholes and not as collections. How qualities come to form themselves in patterns is also a question.

Some of the realists, notably Pitkin and Montague, realize the need for such explanation and go on to assert that the thing is a pattern or system of qualities that act as a

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[1]Perry, GTV, 403.

[2]Perry, PPT, 52. Cf. Montague, Art. IV, 255, Spaulding, NR, 11.

[3]Marvin, FBM, 50.

unit. "Things are . . . what they do. . . ."[1] They are "centers of influence,"[2] and must be "defined in terms of and identified with [their] activity."[3] Each physical thing has ". . . a form inhering in the motion that carries it."[4] There is an "active form" or Gestalt in the physical object which pervades its particles and serves as an "organizing agency."[5]

There is much to be said for this view that the thing is some uniformity of behavior.[6] If certain qualities and relations act together so as to give one the notion of "foot-rule" the system of activity <u>is</u> the rule. This seems more plausible than to say that a certain mass, an extension of twelve inches, a hard surface, a width of one inch, are a foot-rule. If the thing is a coordination of activities the qualitative groups perceived as things would have some reason for thus appearing. The grounds of experience may be "cen-

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[1]Pitkin, Art. I, 211, 210. Cf. Spaulding, NR, 271.

[2]Pitkin, ibid., 225, cf. 226, also Art. III, 445.

[3]Pitkin, Art. I, 226-227.

[4]Montague, Art. I, 131, cf. Art. IV, 286, 265.

[5]Montague, CSD, 51-52, 54, 56, 58. (This is clearly an avowal of substance.)

[6]Cf. Lewis, MWO, 137-139. Even Parkhurst, who opposes substance, asserts that any being "guiltless of action" is "inexplicable" (RLR, 40).

ters of activity."[1] Bowne argued extensively for the view that the thing is the "character of its activity,"[2] and that "the inactive is the non-existent."[3] This Leibnizian conclusion seems difficult to escape.

One branch of neo-realism indicates an attempt to escape it however, through the denial that force or activity is anything more than a system of terms in relation. Force or activity itself is not ultimate any more than substance, and if analyzed it turns out to be specific elements in specific configurations.[4] Such dynamical considerations as activity are "more confusing than clarifying,"[5] and consequently realists oppose, along with scientists, "any explanation which makes use of the notion of force. . . ."[6] Motion, the fundamental concept in any theory of activity, is merely a series of relations between complex terms which are themselves relations between points in space and instants in time.[7]

Activity does, to be sure, consist of relations between

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[1]Leighton, MAC, 189, cf. 188n.

[2]MET, 39, cf. 16, 19, 23, 26, 30, 31, 43.

[3]Ibid., 24.

[4]Perry, PPT, 71-72, 263.

[5]Perry, Art. IV, 104.

[6]Marvin, Art. II, 90.

[7]Spaulding, Art. V, 196, NR, 500.

points in space and instants in time. But is this all that it is? If so, then the terms and relations involved must themselves assume and terminate their correlations.[1] To say that there is "power" in these entities which enables them to assume and terminate their relations would be to endow them with characteristics which realists intend to deny. The latter hold that these terms and relations are of a logical and finally of a mathematical character[2] and hence devoid of "power."

Apparently there is a need for explanation here which neo-realists do not fulfill. Sheldon declares that this definition of motion is "an escape rather than a solution" of the problem and that it reveals the difficulties which arise when the element of "transeuncy" is omitted.[3]

There would seem to be fewer difficulties to hurdle if motion, and hence activity, were considered a complex that is more than the elements which make it up. It is something which is itself ultimate, as well as its constituents. There seems no other alternative than to conclude that it is some-

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[1]Bradley finds the weakness in the theory of external relations to be the fact that no explanation is afforded of how the terms leave one set of relations and adopt another (AR, 575).

[2]This belief is further discussed below (cf. pp. 269-272).

[3]SSPD, 243.

thing more than the mere assumption and termination of relations. It is a whole which does the assuming and dissolving of these relations. If activity is then an ultimate reality there is justification for saying that the thing is activity. Individuality would appear to rest in this principle. A thing may be called what acts as a unit. It is "a persisting unity of diverse qualities,"[1] an "immanent law of appearances."[2]

Neo-realists retort to the critic who presses for a theory of identity that no material complex owns its components. Rather does it share them with other complexes. The "specificity" of any given pattern is not disturbed by the fact that its components also make up other patterns, just as the words "lilt" and "till" are composed of the same letters.[3] "Physical entities may retain their specific natures despite their community of qualities."[4] If qualities are conceived as belonging exclusively to a given complex, their presence in others is strange. Thus if the characters of gold belonged exclusively to gold, then yellowness, lustre, softness, and smoothness could not very well be ascribed to

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[1]Leighton, MAC, 182.

[2]Kremer, NA, 302.

[3]Perry, Art. XII, 301.

[4]Ibid., 302.

any other object, e. g. a brass button.[1] Interaction between objects would be impossible if each owned its phenomena.[2] Attributes do not depend upon their complexes and hence bear no unique relation to them.[3]

Needless to say, a system of windowless monads would be the result if each complex owned its qualities exclusively. There must be a universal character to qualities, the different instances of which help to make up particular complexes. Some significance may be attached to the fact that the elements constituting a complex so act as to convey the impression of oneness or individuality. Cannot this group action be an expression of the nature of the group itself? It is just as reasonable to say that this coordination of elements is no "fiction" created by the perceiving mind as it is to believe the individual elements or qualities are independent of the mind.[4] Certainly these particular instances of qualities and relations must belong together in a unique way, else they could not yield the element of individuality. The neo-realistic assertion that no qualities are owned is really a confession that there is no clear-cut principle of individ-

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[1]Perry, Art. XII, 301.

[2]Marvin, FBM, 183.

[3]Perry, Art. IV, 109.

[4]Cf. Taylor, EOM, 135.

uality.[1]

In the last analysis, one thing cannot be clearly distinguished from another, says the realist, for each thing is a function of every other. With this conclusion realists concede that identity cannot in any definite sense be attained. It is seldom possible to say where an object terminates and relations to other entities begin.[2] Distinction between a stimulus and response cannot be precisely drawn.[3] The sun extends far beyond its fringe of molecules and it is only by a series of practical abstractions that its identity has been narrowed to a central fire.[4] Things are defined in terms of the influence they exert,[5] and since this is hard to determine the precise character of the thing is indeterminable. Definition of things by relations[6] makes the limits of these relations hard to discern. The term object has a wide denotation, but it is "a denotation which physical science itself imposes."[7] The physical world is a realm in which enti-

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[1]A normative definition of individuality is given below (cf. pp. 178-180).

[2]Holt, Art. I, 372.

[3]Pitkin, Art. III, 382, 383-384.

[4]Pitkin, Art. I, 225, 203, Art. III, 446.

[5]Pitkin, Art. I, 227, Art. III, 447.

[6]Marvin, FBM, 175, 25-27, Perry, PPT, 64.

[7]Holt, ibid., 369.

ties and relations stand in complexes that interweave, none of which is genuinely distinguishable from another.

Individuality, the critic of realism must confess, is somewhat indefinite. It is to some extent a pragmatic matter. Things are functional wholes. They are what they may be taken to be for a given purpose. Chairs and tables, bridges and lead pencils are such in a particular context and for the purpose they serve.[1] Between the legs of the table and the floor on which they rest there is constant interplay of motions, an exchange of energy. Consequently one cannot say "exactly" where one ceases and the other begins. But for all practical purposes every man is able to distinguish the two. Each is the function it performs, the one an object to write upon, the other a means of supporting that object. It is just as true to say a chair is a piece of furniture designed to be sat on as it is to declare it is really a bundle of electrons. For the common man the former definition is adequate, for the physicist, the latter.[2]

Realists must perforce decry identity even on these grounds for it is here supplied to the object by mind, and mind, as the realists argue,[3] has no such prerogative. What-

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[1]Parkhurst, RLR, 43.

[2]Cf. Burnham and Wheelwright, PA, 83, 82, 154.

[3]Cf. infra, pp. 223-224.

ever identity there is must be found in the objective world. Yet realists, as noted above, are unable to show such an element in the objective world. The "broad denotation" ascribed to objects by them is their frank confession that identity in any respectable sense is simply not to be found. They may, therefore, justly challenge their critics to point out this elusive principle.

In the history of thought from the time of Socrates and Plato to the present, individuality has proved to be a difficult problem. Etymologically the term, which comes from the Greek word ἄτομον, means the indivisible or "uncuttable." From the great variety of definitions that have been proposed, certain necessary elements stand out. First, an individual is "a being which cannot be divided into parts to which the name of this being will apply."[1] It is an indivisible whole. Secondly, it is a unity which remains relatively constant through change.[2] Third, it is something that is independent and self-contained.[3] Fourth, it is a unique being of which there is but one instance.[4] Fifth,

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[1]Royce, Art. II, 534.

[2]Eisler, HWP, 304, Stout, Art. I, 504.

[3]Royce, loc. cit. Cf. Bosanquet, PIV, 68.

[4]Eisler, loc. cit., WPB, I, 732-733, Stout, loc. cit., Royce, loc. cit. Cf. SOED, I, 993.

"an individual is something which reacts. . . ."[1] Individuality may thus be ascribed to that self-contained, unique, and active whole which maintains a relative constancy through change. The principle of individuality is the persistence of definite and self-contained units or modes of activity through change.

Individuality rests, therefore, in activity according to definite law, though each individual is in a sense a law unto itself. The thing is that complex of entities which acts in a systematic way or performs an intelligible function. There is no need to assume a mysterious and unknown substratum which binds qualities and relations together, but there is need for observing that a principle of activity immanent in the qualities and relations is the thing. Realists would object that such internal connection between qualities and relations destroys their character. Provision was made for this rejoinder in the previous chapter by showing that qualities and relations retain their identity though related in conscious experience at least. Individuality may, consequently, be of the nature of experience.

There is no reason to fear that this view leads to Leibnizian atomism or monadism, though it does have much in common with it. Units of experience are not windowless mon-

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[1]Peirce, Art. I, 537, 538.

ads. They receive stimuli from without and their influence extends to areas far beyond their immediate environment. Their significant feature is that they act as wholes. A thing may be considered the function or purpose it performs. It is a "unity . . . of teleological structure."[1] In the inanimate world where purposes are not so apparent as in the organic, it is still plausible to believe that some measure of purpose is present. Even here things are modes of activity according to patterns which persist through change. Where one complex joins with others to compose a larger one, it is conceivable that a larger and broader purpose or field of activity thus arises, having been built upon lesser ones.

That the principle of individuality requires a theory of substance is now clear. The thing is more than a mere loose collection of qualities and relations. The latter are unified through a mode of activity that manifests a unique pattern. Substance is necessary to account for the factors of wholeness and uniqueness. Qualities and relations alone do not and cannot supply these elements or accomplish these functions.

Realists have not been able to supply a satisfactory means for identifying an object in its relations to others.

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[1] Taylor, EOM, 125, 126. Aristotle's view of final cause has some relevance here.

They have offered clues to the principle of individuality, but have not developed them. Whether they have had more success in dealing with the relation of a thing to itself after undergoing change may now be inquired.

F. PERMANENCE AND CHANGE

Just as substance is a fruitless assumption in the attempt to distinguish one thing from another, so is it otiose as a factor in explaining permanence and change, say the neo-realists.[1] Substance can give no reason for change. Rather does it "leave us precisely where we started, with change ultimate and unexplained."[2] If realists can demonstrate their claim that change can be explained without reference to substance, one more blow will be dealt to that concept.

Change is of two kinds, namely, change of place and change of state. In the first case, change relates to the arrangement, or rather rearrangement, of spatial-temporal

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[1]Montague, however, believes that substance provides an element of permanence in things. He says, "the great achievement of modern science consists in the correlation of . . . qualities and qualitative changes with the continuous and homogeneous relations and changes of relations between . . . perduring qualities or substances"(Art. IV, 266). This substance is to be explained as potentiality of change, causal implication, or consciousness of other events (ibid., 279).

[2]Marvin, FBM, 185, 184. Cf. Spaulding, Art. V, 231-236.

properties.[1] The fundamental concept in change, whether it be of the first or second type, is motion. As already intimated, motion is "a series of complex terms, each of which consists of a one-one correlating relation between a specific term of the space and a specific term of the time series."[2] These correlating relations and their terms are "themselves related asymmetrically and transitively."[3] When a billiard ball changes its position on the table, it is to be thought of as a complex of qualities and relations which now assume new spatial and temporal relations. The series of correlating relations between the points in space and instants in time which constituted the billiard ball in its position of rest and those which constitute it when its rest ceases, is its motion.[4]

Motion, and therefore change of place, the critic of realism must concede, is at least an affair of relations. But the real problem is to define the nature of these relations. Here, once more, arises the problem of how terms and relations acquire and terminate their association. If mo-

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[1]Perry, PPT, 53.

[2]Spaulding, Art. V, 196, NR, 500, Marvin, FBM, 232-233.

[3]Ibid., 203.

[4]Cf. Marvin, ibid., 117.

tion is only the series of relations which in turn become terms for other relations, such a capacity must be ascribed to the terms and relations themselves. This realists refuse to do. The only conclusion must be that motion is more than the mere fact of logical relation. It is an active whole or unit of activity which persists after relations terminate and before they are acquired.

Change, and likewise motion, thus appears to be change of something. The realistic difficulty with the problem of change consists in the inclination to regard change as a mere succession. A series of relations which are "correlated" but have no other common and permeating element is a succession. "A mere succession of entirely disconnected contents held together by no common permanent nature persisting in spite of the transition, would not be change at all."[1] To call succession change seems to be a confusion of terms which robs both of their natural meaning.

Change of state, like change of place, is for realism a succession. In this case it is a progressive succession of qualities[2] or space-time-filling properties[3] instead of a

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[1]Taylor, EOM, 161. Cf. Sheldon, SSPD, 243.

[2]Holt, COC, 212-216, cf. 218.

[3]Perry, PPT, 53.

succession of spatial relations. Change in this as in the former sense is a series of correlating relations and consequently "exactly the same interpretation of . . . these "non-motion" changes must be made as is made of change of position."[1]

But the same difficulties attending an interpretation of change of place are present in this view of change as a succession of qualities. Unless there is some permanent element present in change the very meaning of the term is vacated. The same problem of identity crops up here. To say a thing is a series of states makes it impossible to distinguish the states of one thing from those of another. But to say there is a permanent element which binds these states together makes the identity of a thing discernible even though it undergoes change.[2]

Neo-realists have made the assertion that there is no material substance, but that the functions of substance can be taken over by qualities and relations. This attempt to provide for the functions of substance has largely failed, however, through its inability to supply a satisfactory theory of identity. The relational method has many advantages for the physical scientist but it makes impossible any

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[1]Spaulding, Art. V, 214, 216, 217.

[2]Cf. Lewis, MWO, 396.

clear conception of "things." With its use difficulty is experienced in distinguishing one thing from another, and in discerning the thing that changes.

The only recourse seems to be to adopt some theory of substance. As already suggested, the view which contains fewest difficulties is one that considers substance to be a purposive whole which is active in and through its properties or qualities. Such a unit of activity is relatively self-contained and is capable of maintaining a measure of constancy through change. The conclusion follows that physical objects are substances. A brass button is a unit of activity that is unique. Through changes of time, place, and even of state it retains a discernible identity. It embodies the purpose to be known as the brass button that it is and no other.

Whether all substances are persons is a further question which cannot be settled here. It seems improbable that such a deduction is either justifiable or necessary. Persons are, it may be observed, units of activity which are relatively self-contained and which are capable of remaining constant through change. They also embody purposes. But here the parallel between persons and physical objects stops. Persons are able to choose between purposes, and to refuse to carry out some of them. Persons are capable of discur-

sive thought and the realization of value. Physical objects have not these capacities. Yet the physical thing must be a unit of experience else its individuality remains unintelligible. Experience at the level of physical things is of an elemental character.[1] One may conclude that though all persons are substances not all substances are persons. All substances are, however, units of experience.

The conclusion of neo-realists that matter is neutral in character is an argument that matter is non-substantial.

G. MATTER AND SUBSISTENCE

The neo-realistic metaphysics implies that there is no material substance[2] because there is no matter, at least in the traditional sense. Scientific analysis of physical objects reveals, it is argued, no residue such as that which was once called "matter."[3] Rather does it show that physi-

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[1]Units of experience at the level of physical things may be said to enjoy "prehensions" but not the "apprehensions" which are granted to persons (cf. Whitehead, SMW, 101, 213-214). The latter are also capable of prehensions, though apprehensions are their distinctive faculty.

[2]Realists point out that even if there were material substance, it would be only a part of being (Perry, PPT, 108, Marvin, FBM, 107). Physical nature is but "an instance" of a broader realm (Spaulding, WOC, vii). Naturalism errs in failing to observe this fact (Perry, loc. cit., cf. 65). Interpreters often wrongly contend that neo-realism is indistinguishable from materialism (cf. Verda, NRLS, 192).

[3]Holt, COC, 122, 123, 169.

cal objects are really neutral in character.[1] They are but "aggregates" of "neutral entities."[2] The qualitative distinctness of matter is thus dissolved for these primitive elements are interchangeable with those which make up mind.[3] Neutral entities are "subsistents" and not "existents."[4] They are logical and mathematical in nature.[5]

Whether or not matter remains an intelligible concept is largely a question of usage. If by matter the neo-realists mean the classical opinion that it was a core in which qualities inhere, they are, of course, justified in asserting that it has been "reduced" to other units. But since this is an arbitrary definition, in view of the fact that many different theories of matter have been put forth since the beginning of reflective thought, it is misleading to hold that matter no longer exists. The aspect of reality which these theories have been devised to explain still remains. So different is this phase of reality from that usually termed mind that there are definite methodological ad-

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[1]Holt, COC, 122, 118, 127.

[2]Ibid., 131, 127, 128, Art. I, 368, 372, 373, 370-371.

[3]Perry, PPT, 310, 324, Holt, Art. I, 373, COC, 128.

[4]Holt, Art. I, 373.

[5]Holt, COC, 123, 124, Art. I, 369, Perry, PPT, 108, 83.

vantages in retaining its peculiarity.[1] Even idealism admits the existence of matter, though denying its ultimate reality or validity.

In a sense this criticism is a recurrence of the argument that material substance is a case of pseudo-simplicity. As already noted,[2] material substance in the classical sense is capable of further analysis. But the source of individuality and continuity of things without some theory of substance, constitutes a difficulty which realists do not solve. Hence, the argument, implicit in the neo-realistic system, that there is no material substance because there is no matter has slight significance.

On the other hand, these same neutral entities to which realists reduce matter in some respects illustrate the theory of substance that they reject. If matter, and hence any given physical object, is an aggregate of neutral entities, its origin lies in the neutral realm. The potentialities of particular physical objects lie beyond or "beneath" them in more primitive elements. Substance, as the cause and ground of particular things, has performed this function of poten-

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[1]The fact that matter seems to be of the nature of experience does tend to remove the "bifurcation" in nature between mind and matter. Yet these two realities still perform different functions.

[2]Cf. supra, pp. 144-146.

tiality in the history of thought. There is some virtue, therefore, in calling neutral entities the substances of matter. Neo-realists would doubtless repudiate any such interpretation as this, but in doing so they would leave the problem of potentiality unsolved.

H. CONCLUSIONS

Results of the realistic criticism of material substance may now be formulated. In the first place, the so-called "subjective" origin of the concept of material substance is no reason for rejecting it. Second, neo-realists show successfully that matter is neither made up of one substantial block, nor of indestructible or substantial atoms. Third, neo-realists justly conclude that substance as an inert and inconceivable support of qualities and relations which is still distinct from them, may be rejected. Fourth, the neo-realistic demand that material substance yield to analysis must be met, but explanation of matter through its simplest elements remains incomplete. The factor of wholeness in units of matter may be their substance. Fifth, material substance has been shown to be no "indefinite" potentiality, though the concept may be retained to account for the potentiality of motion or activity according to a pattern, which physical units manifest. Sixth, the argument that material

substance must be given up because it lies beyond experience has little validity, since assumptions and postulates are constantly made about realities that are not directly experienced. Seventh, the attempt made by neo-realists to show that qualities and relations can assume the functions of material substance fails through its inability to provide for identity or individuality, and for permanence in change. Eighth, the principle of individuality, which may be regarded as the persistence of definite and self-contained units or modes of activity through change, requires a theory of substance. Ninth, a material substance may be defined as that unique unit or whole of experience which is active in and through properties and relations according to a law, plan, or purpose. Tenth, the neutral entities advocated by neo-realists perform a function of the material substance which realists reject.

CHAPTER VI

MIND[1]

It is the purpose of this chapter to assess the neo-realistic criticisms of spiritual or mental substance and to evaluate the substitutes proposed for it.

By denying the fact of spiritual substance neo-realists assert that there is no permanent and self-existing soul, subject, or substratum, which supports or joins together the empirical processes of consciousness.[2] Mind can be no substance which privately owns its attributes. It must be considered an "objective" complex in which a nervously endowed organism reacts to stimulation, or selects portions of its environment for attention.[3] Nor is consciousness a "substantial being" whose nature is simple and self-evident.

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[1]In this chapter the terms mind, spirit, and consciousness will be used synonymously, unless otherwise noted, since neo-realists adopt this practise.

[2]Holt, et al., NR, 38, Perry, Art. IV, 126, 143. (Neo-realists do not offer a specific definition of the substance that is rejected, but this definition seems to be presupposed.)

[3]Perry, Art. IV, 134, Montague, WK, 357, Holt COC, 183-184, 171, Art. I, 354-355, 373, Marvin, FBM, 261, 263, Pitkin, Art. III, 454-455, 459-460, Spaulding, NR, 42, 481-482.

Rather is it a "baffling problem" for "rigorous analysis."[1]

While considerable diversity exists among the neo-realistic views of consciousness,[2] there remains general agreement that consciousness or mind is no substantial "subject," but rather an object, or relational complex, resting on the same plane as objects in the so-called physical world. Montague, however, concludes that though consciousness may be present in objective complexes, it is none the less to be considered substantial.[3] Agreement among the other five realists in opposing spiritual substance still makes possible significant general conclusions.

The choice by neo-realists of a method for studying con-

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[1]Perry, Art. XIII, 197, Spaulding, in Holt, et al., NR 480 (9).

[2]Pitkin considers consciousness a relation, of a non-spatio-temporal dimension, which accomplishes reactions in the nervous system (Art. III, 457); Montague equates it with potentiality or causal implication (Art. IV, 281, 276-278); Holt defines it as the aggregate of objects to which the nervous system responds (Art. I, 354, 373) but later adds that it includes the response (Art. II, 393-394); Perry regards it as a complex relation between an interested organism and selected parts of its environment (Art. IV, 147, 134), thus agreeing in most essentials with Holt (cf. PPT, 305n, where Perry refers to Holt's The Concept of Consciousness and "Response and Cognition" as "the most able statement of the . . . [neo-realistic] theory" of mind); Marvin largely agrees with Holt and Perry (FBM, 261, 263); Spaulding finds consciousness to be a relation but inclines to believe it is a new dimension (NR, 42-43, 481-482).

[3]Montague's conception of spiritual substance will be presented below. Cf. pp. 217-222.

sciousness implies a criticism of substance. Introspection, which has usually been held to reveal unique, distinctive, and private characteristics of mind, is rejected. Denial of validity to the introspective method means denial that spiritual substance is discoverable in experience. Consideration of this method thus becomes pertinent.

A. THE METHOD OF INTROSPECTION

"Spirit" says Perry, ". . . is not a . . . substance, which can be discovered only by the unique method of introspection,"[1] or, indeed, by any other method. Though the introspective method is more harmonious with the doctrine of spiritual substance than others, it can be no defense of the notion. As a method of studying mind it has grave weaknesses.

While introspection may be valuable in collecting and identifying "cases of mental content," it does not serve to define their nature.[2] In the first place, it is unable to accomplish such definition because of its abstractness. Not only are a multitude of elements which condition consciousness not given in introspection,[3] but many facts which have

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[1]PCI, 377.

[2]Perry, PPT, 277, 275-276.

[3]Pitkin, Art. III, 436.

actually been in consciousness cannot be recalled.[1] Secondly, introspection is an inadequate method because its conscious use bears no organic relation to other states of consciousness, and hence cannot retain them for analysis and description.[2] "Introspection is retrospection."[3] Thirdly, introspection yields only things in relation[4] and these are better studied by other methods. "No generic character" can be discovered about the contents of consciousness by introspection.[5]

Because of these weaknesses it is necessary "to abandon the method of self-knowledge altogether, and substitute that of general observation. . . ."[6] Since consciousness belongs to the same open field of experience wherein other objects lie[7] it is "observed precisely as physical phenomena are observed."[8] This thesis of behaviorism, that experience can

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[1]Holt, COC, 199, 194-195, 206-207.

[2]Ibid., 214-215, 192-193, 201, Perry, Art. IV, 147, 145, PPT, 275, cf. Marvin, FBM, 257-258.

[3]Holt, ibid., 299, 197-198. Cf. Perry, PPT, 276-277.

[4]Marvin and Holt derive this view from Woodbridge (Macintosh, POK, 281).

[5]Perry, PPT, 277.

[6]Ibid., 283.

[7]Perry, PCI, 377-378, PPT, 274, 273, Holt, Art. I, 353, Marvin, Art. II, 60, FBM, 257.

[8]Perry, Art. IV, 147, Holt, COC, 308, Marvin, FBM, 258.

be apprehended by the methods of physical science, is rather generally accepted by neo-realists.[1]

The defender of introspection would reply to the neo-realist that the first criticism urged above would be relevant to any method that might be adopted. Abstractness results inevitably from the fact that only a part of consciousness can be considered at any given moment. No method would make it possible to study the factors conditioning consciousness all at once. This difficulty must be blamed on the nature of the universe and not made sufficient reason for rejecting introspection. It is of course true that introspection may not reveal all that has passed or is passing through the mind. But here again the difficulty is common to other methods. Even Perry concedes that the observer may not know all that is in his own mind or in that of

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[1]Marvin, FBM, 258, 260, Holt, COC, 308. Montague, characteristically, dissents at this point. He avows that introspection reveals not only such objects as seem momentarily to belong to experience, e. g. stones, chairs, animals, but also certain subjective elements, e. g. feelings, desires, volitions, which are indissoluble from experience itself. Introspection also yields a relational form or structure applicable to the psychical phase of the experience (Art. I, 108-109). Spaulding's definition of mind in a more recent work (WAI, 151) as "experience or awareness," and his assertion that "we . . . directly experience experience, or . . . are aware of awareness, as a reality that is as qualitatively different from matter and other kinds of reality . . . as color is . . . from sound," would also seem to indicate belief in the validity of introspection.

another.[1]

In response to the second criticism of introspection, it may be pointed out that the empirical fact of self-identity seems to deny such discreteness in consciousness. How could one realize himself to be the same person today who sat at his desk at the same hour yesterday, unless the data of experience were intimately related and organized? Neo-realists, as will be observed more in detail below,[2] hold that self-identity is to be accounted for largely on physiological grounds. But this would mean, in the last analysis, that units of matter associate themselves together in such fashion as to recognize their own unity and identity— a materialistic conclusion which even neo-realists seem to reject. Consciousness must, furthermore, be some kind of durée réelle to account for the fact that meanings and relations are present in it. If it were a mere discrete series of experiences it is difficult to see how these experiences could gain interpretation and reference to each other.

To the argument that introspection yields nothing more than cases of mental content which are really things in relation, and that these are observable and interpretable by

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[1]PPT, 289-292, 283.

[2]Cf. pp. 226-234.

other methods, it may be replied that facts are against it.[1] One may feel that one's dancing at a party is inferior to that of others without this feeling being apparent to any one else present, or one may wish he had remained at home without actually going home, or he may think of greetings to give the hostess which are never uttered. Certainly these are mental facts which introspection can report but which other methods would never discover. To be sure each conscious state has reference to "the open field of experience," i. e. it stands in relations to entities and states beyond itself, many of which may be clearly apparent to others. But some items of consciousness are not open to study by such a method, for example, as the behavioristic. Behavior indicates many states of consciousness but not all.

These facts indicate that the introspective method need not be given up. Therefore, the argument that spiritual substance in any form must be denied because of its alliance with a faulty method, may be declared invalid. Since there remain good grounds for using the introspective method the possibility of spiritual substance also remains.

While neo-realists largely presuppose that mind can be no subject or unity of apperception,[2] and hence no substance

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[1]Cf. Sheldon, SSPD, 187.

[2]Hasan, ROR, 166. Cf. Holt, COC, 142.

of any sort, they still advance some more or less direct criticisms of this view. To these the argument now moves.

B. CRITICISMS OF SPIRITUAL SUBSTANCE[1]

Selfhood in any unique sense whatsoever is, according to Perry, a mere matter of habit. Self-consciousness is "a clear case of the mistaking of habit for insight," for it is composed, as analysis reveals, mainly of familiar images and phrases containing one's name or a personal pronoun, e. g. "I will," "I think," or "I act."[2] Since all habits are arbitrary this one is not trustworthy.[3]

It is of course true that consciousness is habitually thought of as belonging to a self. But this is no real argument either for or against spiritual substance. As observed in the discussion concerning habit and material substance, the source of a notion determines neither its meaning nor validity. Whether the habit is based on facts must be

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[1]In rejecting spiritual substance neo-realism follows significant tendencies noticeable in philosophy and psychology early in the present century. James had protested against the conception of consciousness as a substance and had held it to be a form of connection among objects (cf. "Does Consciousness Exist?" Jour. Phil., 1(1904), 477-491). Animal and physiological psychology had been arguing for the non-spiritual character of consciousness (cf. Ray, CNR, xiii).

[2]PPT, 282, cf. 288.

[3]Ibid., 281.

the problem to which attention is given.

That the habit of conceiving mind in terms of spiritual substance[1] has no justification in fact may be derived, first of all, according to realists, from the mind's liability to further analysis. Spiritual substance is a case of "pseudo-simplicity" or incomplete analysis.[2] Mind or self, just as body, is a complex "capable of being analyzed into more primitive terms" and therefore is not itself "really simple,"[3] or readily understandable.[4] Consciousness, not itself simple, is an "aggregate" of simple entities and is to be defined in terms of them and not vice versa.[5] Though consciousness may be familiar, it is by no means simple.

So far as this criticism of spiritual substance means that consciousness has no quality, state, or attribute which lies beyond the pale of analysis, its validity may be readily

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[1]Neo-realists are very sure that mind is not "a universal substance, out of which every single entity that is, is composed" (Holt, COC, 102, 97, cf. Spaulding, NR, 435, WAI, 150-151, Perry, Art. XII, 301, Art. XIII, 197). The problem here is to determine, however, not whether there are one or many substances, but whether the concept of spiritual substance itself is a valid notion.

[2]Perry, PPT, 280-281, Art. XIII, 197, Holt, et al., NR, 12-14.

[3]Perry, ibid., 310, 237, Art. IV, 127, 143.

[4]Perry, Art. XIII, 197.

[5]Holt, COC, 82, 79.

conceded. "What cannot be described or explained or understood, plays no part in the world of reason. . . ."[1] A transcendent and unknowable soul defying analysis is a useless notion.[2] Not only does it introduce a mystery to explain the empirical processes of consciousness, but its relations to those processes remain ambiguous.[3]

If, however, this argument means that consciousness is better understood through its simple elements than through the more familiar whole which these elements constitute, the weight of the argument may be seriously questioned. In the first place, these simpler elements are never found as such apart from a whole of conscious experience. This the realists themselves point out.[4] The quality red can be abstracted perhaps in thought from other qualities but it is always experienced with something that <u>is</u> red, i. e. along with other qualities and relations. To explain consciousness by its simpler elements is to explain the given state by something that is never given. Such a procedure would repeat the very weakness neo-realists seek to avoid, for

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[1]Sheldon, SSPD, 188.

[2]Cf. Spaulding, NR, 243.

[3]Cf. Barrett, PHI, 133.

[4]Perry, Art. IV, 127.

this is just what is done in appealing to a transcendent soul to explain a given state of consciousness.

Furthermore, the reduction of consciousness to its parts and the assertion that it is completely explained by its parts is either itself a case of incomplete analysis, and thus a repetition of the error realists are trying to avoid, or an admission that some of the factors discovered are inexplicable. Perry, Holt, Pitkin, and Marvin observe that there are properties of wholes distinct from those of parts, but they declare that these are derived from the parts and hence are reducible to them.[1] But it is difficult to see how some of the properties of such a whole of conscious experience as the one word "I" indicates, could be reduced to its parts. It is not a mere succession of conscious states because it can compare such states and recognize them as past or present. Thus the properties of conjunction and comparison of conscious states do not belong to these states themselves. Apparently there is some factor present which the neo-realistic analysis fails to reveal.[2] Spaulding, however, would regard these properties as a case of "creative synthesis," but would declare them "non-rational," for properties that are

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[1]Cf. discussion of this problem in chapter IV, especially pp. 89n1, 100n3, 108-111.

[2]Cf. also Burnham and Wheelwright, PA, 346.

unique with wholes constitute a non-rational element in nature.[1]

In spite of the argument that spiritual substance is a case of pseudo-simplicity, therefore, the possibility that substance is present as the wholeness or identity-reference of a given conscious state still remains. Neo-realists do rightly point out, however, that belief in a transcendent soul will not stand analysis.

A second realistic argument against spiritual substance is that the latter exemplifies the fallacy of "exclusive particularity," for it requires one to assume that sensations belong to a mind.[2] The advocate of spiritual substance, says the realist, erroneously concludes from the fact that perceptions and ideas occur in John Smith's mind, that they therefore belong exclusively to it.[3] While his ideas cannot be attributed to any one else, they can nevertheless be shared.[4] Belief that a subject cannot also be an object, i. e. that perceptual elements have no communal character, is a case of this fallacy.[5] To say that qualities

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[1]Art. V, 247, 241, 240, cf. WAI, 31-32.

[2]Perry, PPT, 286, Holt, et al., NR, 14-15.

[3]Spaulding, NR, 500, 501.

[4]Perry, ibid., 287, 297.

[5]Ibid., 298, cf. 127-128.

belong to their subjects exclusively would be so to denude material objects, as well as other minds, that they would thereby become meaningless.[1]

The critic of neo-realism must of course agree that if qualities known by a mind belonged exclusively to that mind solipsism would be the result. And since solipsism is a self-contradictory notion, due to the fact that any effort to argue for it or even to state the view presupposes its falsity, no tenable theory of perception can be reduced to it. There is, moreoever, as common experience testifies, knowledge of an independent and external world.[2]

That a valid interpretation of the status which qualities or sensations occupy in knowledge, requires the abandonment of substance is not so clear. If one were obliged to hold to epistemological monism, then, as realism argues, the qualities which "enter" one mind might be considered to be the same ones which "enter" another. But the fact of error makes epistemological monism exceedingly dubious, and

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[1]Perry, Art. XII, 301-302, Spaulding, NR, 240.

[2]Even Berkeley, whom the neo-realists take to be the classical exponent of subjectivism (Perry, PPT, 124-134), held that objects have an existence independent of and objective to finite knowers. He says, ". . . sensible things . . . have an existence exterior to my mind, since I find them by experience to be independent of it." (Dialogues, III, Everyman Edition, p. 266, cf. Principles, 28, 29.)

while research in this problem still continues it cannot yet be said that error is satisfactorily explained by epistemological monists.[1] Since epistemology must, therefore, be dualistic[2] the "qualities" or sensations present in a given mind may be considered native to that mind,[3] though they report, indicate, point to, interpret, imply, or refer to a reality beyond themselves. The objective reference of sensations is their communal character. From this point of view the "sharing" of ideas means that two different minds possess a relatively similar though separate report of the same objective fact.

In short, the argument that spiritual substance is a case of the fallacy of exclusive particularity would be a

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[1]Lovejoy, RAD, 77. If error is consigned to the realm of subsistence more problems arise than were present in the older view that errors reside in consciousness, for the relation of subsistence to existence has not been made clear by neo-realists. Spaulding's assertion that "one is freed from the hypothesis that consciousness is a substance" by "the non-existence" of error (NR, 442, 441), cannot, therefore, be considered persuasive. Cf. infra, pp. 285-287.

[2]There are, to be sure, grave weaknesses in the theory of epistemological dualism, but its merits outweigh the defects.

[3]While the quality or sensation arises in the mind the originating stimulus may not be internal to the mind. Perceptual knowledge of an object is "neither the coincidence of mind and object . . . nor any duplication of the object in the mind." Rather is it an activity of mind in which the limitation and interpretation of what is given and the prediction of future givenness occur. (Lewis, MWO, 134, 135. Cf. Hartshorne, PPS, 8, 245-250.)

serious blow to the concept, if the fallacy were actually committed. Since, however, no one actually contends that sensations lack an objective character and since a mind may in a sense "possess" its sensations without the disastrous effects which realists fear, the argument loses its force. The particularity of sensations is exclusive largely in the sense that they are numerically distinct in different minds. The right to believe in spiritual substance as the "ownership" of sensations which have a universal and objective reference, still remains. This ownership need not be considered a mysterious core in which sensations inhere, for such a conception would raise the same difficulties as the concept of a transcendent soul. One is, however, free to believe that the sensations or data of experience in a given mind belong together and function as a unit.

The third argument by neo-realists against spiritual substance is based on the second. Substance, it is held, stands unjustifiably for not only an ownership of perceptual data, but also for a privacy and uniqueness of ownership which conscious experience does not possess. Realists deny that these data are owned and that this ownership, if it existed, escapes inspection by other minds. ". . . The uniqueness of sensations and affections in the individual is an appendage of the soul-substance theory" and consequently is

"the veriest hocus-pocus."[1] Consciousness is no stuff or substance that escapes public inspection.[2] In fact, there is no "purely subjective existence."[3] Contents of mind exhibit no generic character, they are open to all.[4] They may be present in different minds in the same way.[5] Belief in the privacy and uniqueness of mind is a habit based on a misinterpretation of facts.[6] Whatever uniqueness there may be in the experience of a given individual is negligible so far as his intellectual life goes,[7] though bodily states do possess a private character.[8]

It seems clear that neo-realists correctly point out the relative privacy of affective and even of volitional factors in experience. One is uniquely sensible of his own

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[1]Holt, COC, 110, cf. 310. Holt's later statements that "affections" exist within the organism (cf. Art. II, 402-403, 394, 396), seem to soften this contention that they are not private and unique.

[2]Marvin, FBM, 260-261.

[3]Perry, Art. IV, 143. Cf. Schlick's belief in the "neutral" or "impersonal character of experience" (Art. I, 369, 367).

[4]Perry, PPT, 227, 293-294, 295, Art. IV, 147.

[5]Perry, PPT, 287, 288.

[6]Ibid., 288-289, Holt, COC, 185-191, Art. I, 353.

[7]Perry, ibid., 287, 288, PCI, 379, Holt, COC, 109.

[8]Perry, PPT, 293-294, 295, Holt, Art. II, 402-403.

feelings, desires, and intentions because these have a nervous connection with his own brain alone. Others may deduce what some of these affective states are, but they can never observe them directly. If a slothful or sullen workman is reproved for his shoddy work some conclusions about his feelings and intentions may be drawn from his actions thereafter, but there will also remain many features about them that are forever hidden from others.

But to argue, as some neo-realists seem to do,[1] that these facts indicate only that one body is unique and distinct from another and not that minds are private, divides experience into such compartments as do not actually exist in conscious life. Feelings, desires, and volitions, continually mingle with the more cognitive activities in experience,[2] sometimes to the mind's advantage, sometimes to its hindrance. That fatigue, anger, desire for comfort, willingness to eat excessive amounts of food, becloud the intellectual activity of the mind are too patent facts to ignore. On the other hand, rational powers may so dominate one's life that these excesses are avoided. Will power may even enable one to think clearly for a short period in spite of

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[1]Cf. Perry, PPT, 293.

[2]Hartshorne argues that an "affective tone" is present in "the entire content of consciousness" (PPS, 7, 174, 175).

them. Conscious experience actually involves these diverse factors in complexes of varying patterns. Thus, whatever privacy there may be to feelings and volitions constitutes an argument for the privacy of mind.[1]

There exists considerable doubt, also, whether even the cognitive functions of mind are completely open to public inspection. John's friend may of course become Henry's friend, as Perry asserts.[2] Yet John's conception of what a friend is, may vary considerably from Henry's and the latter may never find it out. Even if John's conception coincided with Henry's they would not be numerically identical.[3] Perry agrees to this but calls it a "trivial proposition,"[4] since John's idea of Henry's idea of friendship is bound to be reasonably accurate. Some privacy is thus admitted. The real question concerns its importance and extensiveness.

The fact that one mind's idea of a given object is not numerically identical with another mind's idea of that object, can scarcely be so "trivial" as Perry assumes. Though John's concept of friendship were accurately known by Henry, the place of that concept in the rest of John's conscious

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[1]Cf. Burnham and Wheelwright, PA, 331-332.

[2]PPT, 287.

[3]Cf. Verda, NRLS, 124.

[4]Loc. cit.

life might completely escape Henry. The latter might not be able, for example, ever to discover that John regards friendship as a means of political or social advancement. Even if he suspected it, he might never be able to prove it. Moreover, the failure of minds to understand each other even when they try most desperately, would seem to occur more frequently than Perry admits. The diversity of philosophical opinion in the United States at the present indicates that the distinctness and privacy of minds is scarcely "trivial."

There is, one may conclude, much in a mind which is unique with that mind, and which escapes inspection by another mind. It may be that spiritual substance coincides with this factor of privacy and uniqueness.

Neo-realists argue, in the fourth place, that spiritual substance must be denied because consciousness is no whole that is more than the elements making it up, or that binds its elements, i. e. particular data of experience, together.[1] Consciousness is not "a distinct substance," i. e. it is not a class term which applies "distributively" to each of its

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[1]The first argument against spiritual substance was that it exemplified incomplete analysis. Here it is contended that spiritual substance is an unnecessary assumption since the elements of consciousness are not internally bound together. The two arguments are phases of the same issue, namely, that of whether consciousness is an organic whole.

members. Rather is it to be taken "collectively." Consciousness is its elements just as a regiment is all its soldiers, but nothing more nor less.[1] It is a "collective entity" whose contents fluctuate. Elements come and go in consciousness but there is no "logical structure" or "internal relationship" binding them together.[2] This conception of consciousness finds "the most remarkable parallel" in Hume's view that consciousness is only a heap or collection of different perceptions. Since every perception is distinguishable from another each "may be considered as separately existent."[3] Parts of consciousness are "dependent on the whole of consciousness," but this is really a dependence of whole on part, just as an aggregate depends upon its members.[4]

It is not just clear how far neo-realists wish to push the discreteness of consciousness. Pitkin is willing to assert that "predispositions," "purposes," and "associations," "interpret the instreaming characters" of experience.[5] Perry

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[1]Holt, COC, 89-90. Cf. Perry, Art. IV, 143.

[2]Holt, ibid., 210, 170.

[3]Perry, PPT, 306, cf. Art. IV, 149.

[4]Perry, Art. IV, 137, 144.

[5]Art. I, 228.

allows that the fragments of nature which find their way into mind "acquire thereby a peculiar interrelation and compose a peculiar pattern."[1] What status this "pattern" or "peculiar interrelation" enjoys is not altogether apparent.[2]

Though consciousness may involve a measure of discreteness, and although its contents can be distinguished with relative clarity, to call it merely an aggregate of separate elements does not do justice to the facts of experience. In the first place, as already noted, the ingredients of consciousness never occur separately. They always occur in complex wholes.[3] Secondly, the mere identification of an element in a given state of consciousness involves it in such relations to other elements as actually give it meaning.[4] Apart from these relations the element is a mere "that." Finally, there is a factor of self-reference in each conscious state. When John Jones is aware of a red pencil the awareness includes a reference to other data which <u>are</u> John Jones. He may not reflect at the moment that

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[1]PPT, 277.

[2]But cf. Perry, Art. IV, 138-140, PPT, 277-279.

[3]Lewis, MWO, 127-129, 146, Cassirer, SF, 248, Brightman, Art. V, 265.

[4]Lewis, ibid., 132-133, 118.

he is a self that is now experiencing the red pencil, but unless there is this self-reference, awareness would be meaningless. Awareness at a given instant transcends that instant of time and gains relation to other experience which persists through time. In short, consciousness is present as a Gestalt[1] and not as an aggregate of discrete elements.[2]

Evidence for the organic character of consciousness may be said, therefore, to refute the neo-realistic arguments that consciousness is an aggregate of discrete elements. Spiritual substance may be present as the organic wholeness of consciousness.

The fifth and final argument which neo-realists advance against spiritual substance rests in the assertion that perception is "presentative"[3] and not judgmental. The knowing situation is one in which neither the knower nor the knowing relation can be an active substance,[4] otherwise knowing would be self-contradictory and self-defeating. The content of consciousness is the actual presence to the

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[1]Cf. Koehler, GS, 187-194.

[2]Evans, NROR, 138, Verda, NRLS, 116.

[3]Holt, COC, 142, 143, Pitkin, Art. I, 222, Marvin, FBM, 261, 263.

[4]Spaulding, NR, 28, 42, 212-213, 292.

physiological organism of objects which that organism selects. Knowledge is a relation between homogeneous elements in nature.[1] The mind is not active in the knowing relation, that is, it does not supplement or modify the given data. It merely selects by attention what shall be in the manifold of consciousness.

This criticism raises epistemological problems which lie beyond the province of the present investigation. However, certain objections to the criticism may be discerned. First of all, if perception is pure receptivity the knower is left without a means of distinguishing truth and error. Both may be present in a given state of consciousness with the same presumption of objectivity. It is an empirical fact, however, which neo-realists appear to neglect, that along with the propositions which the mind entertains at any given moment, there is also belief or judgment that they are true or false, or partly true and partly false.[2] Secondly, the view that perception is pure receptivity overlooks what Lewis calls the factor of "prediction." As Berkeley put it, one presentation is the sign for another that may be expected. Perception is the discovery in what is presented of

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[1]Perry, PPT, 324, PCI, 377.

[2]Rogers, Art. I, 145-146.

something which is significant of what is not now so presented.[1] Apparently an element of construction, interpretation, or judgment attends perception which neo-realists do not take into account.[2] If there is judgment in perception, consciousness is active.[3]

There is no reason why the active and judgmental character of consciousness in knowing should lead to the skeptical or solipsistic subjectivism that neo-realists fear. It by no means follows that the mind creates its objects simply because it deals with the stimuli from those objects creatively. The objects of consciousness may be just as independent and "real" as the neo-realist desires, even though the mind is actively interested in them. Grounds for believing in substance as the active and interpretative element in consciousness still remain.

As a result of the direct attack by neo-realists on the concept of spiritual substance the following principles are clear. First, neo-realists show that substance as a transcendent and unknowable soul is truly "an embarrassing super-

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[1]Lewis, MWO, 44. Hocking observes that "experiencing is getting answers to questions which the mind is putting to the world. . ." (TOP, 362).

[2]Kremer, NA, 301.

[3]Cf. Evans, NROR, 136.

fluity."[1] Secondly, they also rightly show that any theory of spiritual substance must allow for analysis of the concept into its constituent parts, but they fail to demonstrate that consciousness may be better explained through its simple parts than its substantial wholeness. Thirdly, spiritual substance as the exclusive possessor of perceptual data that have no objective character leads to solipsism as realists assert, but substance as a unity of data which still manifest an objective reference remains a tenable hypothesis. Fourth, the neo-realistic argument that substance as a private and unique factor in experience either does not exist or is of negligible importance, cannot be justified, though it does emphasize that consciousness is no completely monadic substance. Fifth, the argument that substance is denied by the discreteness of conscious experience calls attention to an important factor in consciousness but disregards its relational and organic features. Sixth, the denial of substance because experience is non-active, i. e. because it is presentative and not judgmental, involves a disregard for the empirical fact that interpretation attends perception.

One may conclude, therefore, that the neo-realistic critique of spiritual substance calls attention to extreme

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[1]Leighton, MAC, 187.

forms of that doctrine which must be rejected. Yet, the alternative still remains that spiritual substance may be the element in consciousness which accounts for its organic, unified, private, active, and self-identifying characteristics. There is no embargo on believing that spiritual substance is the concrete fact of selfhood immanent in the flux of conscious experience. Spiritual substance is not a "that which" above or beyond consciousness which performs the functions of self just noted. Rather is it the de facto unity of these functions themselves.[1]

It remains to inquire whether neo-realists are able to present a reasonable view of consciousness without the rejected concept of substance. This amounts to asking whether they propose an adequate substitute for the notion of substance. But before proceeding to that problem it is necessary to observe that Montague, whose views have so far in this chapter been largely ignored, does hold to a doctrine of spiritual substance. His theory merits separate consideration.

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[1]Laird comes essentially to this same conclusion. "Substance," he says, "is . . . a descriptive term indicating a unity which exists de facto. It does not make the connectedness of properties; it only describes their connectedness. It is not even an accessory after the fact. Minds are substances simply because desiring, willing, and knowing do not float about loosely. They always unite in a personality, and this united fact is the spiritual substance. . . ." (ASR, 172-173.)

C. MONTAGUE'S CONCEPT OF SPIRITUAL SUBSTANCE

Montague's first published essay was "A Plea for Soul Substance,"[1] and ever since that time he has held that "the mind . . . is a real soul. . . ."[2] By this he means that mind has "curious properties . . . which are so different from the properties of bodies" that they cannot characterize a merely mechanical aggregate.[3] Among these properties may be found "prospective self-transcendence" which is also "purposive or teleological,"[4] "retrospective,"[5] "spatial,"[6] and "logical"[7] self-transcendence. Mind is "the place of forms," i. e. Platonic ideas or essences, and is capable of pursuing ideals.[8] It is "an indivisible unity"[9] and pos-

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[1]This was the title of the essay. See Psych. Rev., (1899), 457-476.

[2]Art. XIII, 157.

[3]CSD, 32.

[4]Ibid., 33, 58, Art. I, 115, 126-128, Art. IV, 282, 285, Art. VII, 49.

[5]CSD, 36, 58, Art. IV, 282, WK, 361.

[6]CSD, 37, 40, Art. IV, 282.

[7]CSD, 39.

[8]Art. I, 114.

[9]Ibid., 112.

sesses a certain amount of privacy.[1] As "an organism" within the physiological organism it is active in "imposing patterns of self transcending meaning upon the sensory contents,"[2] though it is to some extent an effect of external objects.[3]

These attributes belong to the mind or soul because the cortex of the brain possesses, as no other structure does, the "capacity for retaining as specific forms of potential energy minute portions of the specific kinetic energies of the neutral currents which stream through it."[4] Traces of this potential energy are built up into complex systems which give to the brain possessing them such rational and self-determining powers[5] as distinguish men from inanimate bodies. The latter have stores of energy but they are simple and of insufficient range to prevent their behavior from being controlled by contiguous bodies.[6] Consciousness is

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[1]CSD, 40.

[2]Ibid., 58.

[3]WK, 358-360, 382, Art. IV, 276-278, 281.

[4]WK, 362, cf. Art. IV, 285, Art. I, 129.

[5]Yet mind is in some sense adjectival to the body (cf. CSD, 23-31). It is both cause and effect (Art. IV, 276-278, 280).

[6]WK, 362, Art. IV, 283.

thus a "correlate of causality or energy."[1]

Resemblances between consciousness and the potential energy of physical events make possible their identification. For example, both refer backward and forward in time, and outward in space, and both are private or hidden.[2] No recognized term expresses the three-fold reference of events to their causes, effects, and interacting contemporaries. "Implication" and "potentiality" approximate it most nearly.[3] Therefore it is justifiable to conclude that "the potentiality of the physical is the actuality of the psychical and the potentiality of the psychical is the actuality of the physical."[4] The type of consciousness one has at a given moment is the result of energy currents of a particular strength.[5]

Critics have vigorously maintained on the one hand that

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[1]WK, 361.

[2]Art. I, 129, 120-121, 126-128, Art. IV, 281-282, WK, 330, 361.

[3]Art. IV, 282, 283.

[4]Ibid., 281. Obviously this view has universal and metaphysical significance which lies beyond the present problem of substance in finite consciousness. For example, Montague asserts that "all matter is instinct with something of the cognitive function" (Art. IV, 283), and decides to call his system "hylopsychism" (Art. IV, 278-281), "animistic materialism" or "cosmological spiritualism" (Art. XVIII, 158).

[5]Art. IV, 293, 294.

Montague only contributes to confusion by trying to identify such "generically different" factors as consciousness and causal implication,[1] and on the other hand that though there exists similarity between these two notions, the manner of their conjunction is not explained.[2] Whatever may be the truth in this controversy it is clear that Montague is calling attention to a genuine attribute of consciousness. The mind does involve self-transcendent reference to the past and future and to distant objects in space.

Apparently Montague is arguing expressly for a concept of spiritual substance. While he does not use the term substance in his more recent writings, he points out that the theory of cause-effect potentiality conserves the truth in the concept of substance.[3] Certainly potentiality was one of the functions that substance traditionally performed. Probably Montague would agree that spiritual substance has at least those characteristics that remain after the critique by his colleagues has been evaluated, namely, organization, unity, privacy, activity, and self-identity. To this group

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[1]Hasan, ROR, 316-317, 318, Rogers, Art. I, 151-152, 156, Macintosh, POK, 288-289.

[2]Sheldon, SSPD, 192-193.

[3]Art. IV, 279.

he would add the factor of potentiality.

This additional characteristic of substance doubtless contributes something to an understanding of mind. At any given moment the mind has capacities for referring to objects that are not immediately present to it in space and time. Thus it has at any instant the potentiality for passing into other states. However, there is grave danger that this factor of potentiality may become an "indefinite" potentiality and consequently fall heir to all the vagueness and ambiguity of the transcendent soul. Certainly the potentialities of a mind at any given moment are for the most part a dark mystery. To explain a mind by reference to its potentialities is to appeal to the unknown. But merely to say that any given conscious process involves references beyond itself does not seem so mysterious. The fact of self-transcendent reference is actually immanent in the conscious process. To the element of identity, found above to characterize substance, may be added that of transcendent reference. Spiritual substance is not only an identity, but it is a self-transcending identity.

It is now evident, not only that "the six" neo-realists fail to show the necessity for abandoning all forms of spiritual substance, but that one of their number argues explicitly for one of those forms. The substitutes presented for spiritual substance may now be observed.

D. CONSCIOUSNESS AS RELATION

Neo-realists substitute for the conception of mind as substance "the relational view of consciousness."[1] While difference of opinion exists as to how this relation may be construed, neo-realists agree that consciousness at least involves "a complex relation between a sentient and interested organism and some parts of its environment. . . ."[2] This view marks an effort to define mind as a mode of connection within the one objective world, and hence as a reality that is homogeneous with this world.[3]

According to one strand of neo-realistic thought consciousness is more of a new dimension than a relation in the space-time world. Spaulding argues for consciousness as a relation[4] but then concludes that it is a "qualitatively distinct dimension in the universe."[5] He holds that the new

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[1]Spaulding, NR, 42 (Spaulding is also critical of the relational view, cf. NR, 482), Marvin, FBM, 262-263.

[2]Perry, Art. IV, 147, 134, PPT, 321, 315, 316, 308, Spaulding, NR, 42-43, 88, 89, Marvin, FBM, 261, 263, Pitkin, Art. III, 449, 453, 441, 455, Art. I, 228, Montague, Art. IV, 475, WK, 358, Holt, Art. I, 354, COC, 219, 254, Art. II, 393-395.

[3]Holt, FW, 93, Perry, PCI, 377, 378, PPT, 304, 323, Holt, et al., NR, 33, 35, Montague, Art. VI, 199.

[4]NR, 42-43.

[5]Ibid., 478, 471, 484, 485, 481-482, 470.

dimensional aspect of consciousness is its unitary wholeness, i. e. the qualitative character peculiar to it as a whole, but not applicable to its parts.[1] There is a relation between this new dimension and the "elements" of consciousness, just as there is a relation between the properties of wholes and their parts.[2] But consciousness as a new dimension cannot itself be identified with a relation. It may be construed as a relational complex, but not as a part of that complex. Rather is it a whole within which there are relations.[3] Pitkin also believes that consciousness is "of a dimension different from any spatio-temporal one." It is "of the (4+a)th order."[4] "Cognitive relations" are "in that different dimension," and are logically "transverse" to those in the spatio-temporal order.[5] Other neo-realists do not seem to share this view.

Consciousness defined as a relation involves two end-terms, namely, the organism and a portion of its environment. The "subject in consciousness is the living and responding

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[1]Spaulding, NR, 481, 472, 476.

[2]Ibid., 481.

[3]Ibid., 482.

[4]Art. III, 456, 453-454, 458.

[5]Ibid., 456.

organism,"[1] whose nervous system selects portions of the environment for inclusion in the conscious cross-section.[2] There is a "combining action" in consciousness performed by physical, physiological, biological, and ethical principles in the organism. These determine the arrangement of elements in consciousness.[3] Portions of the environment are "illumined" by the action of the organism,[4] just as a searchlight playing over a landscape lights up now this object and now that.[5] On the other hand, the content of consciousness is the section of the environment to which the nervous system responds.[6] Consciousness is literally an excerpt of things selected by a cerebrally equipped organism for its special purposes.[7] This "manifold of consciousness . . . is something in and for itself."[8]

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[1]Perry, Art. IV, 126, 134, 140, Holt, Art. II, 394, FW, 174-175, Spaulding, NR, 89.

[2]Perry, ibid., 134, 138, PPT, 298, 299, Pitkin, Art. III, 454, 444, 445, 442, Art. I, 215.

[3]Perry, Art. IV, 139, 138, 140.

[4]Perry, PPT, 300.

[5]Holt, Art. I, 353-354, COC, 168-172, 182, 208, Marvin, FBM, 263.

[6]Perry, PPT, 299, 279, 277, Art. IV, 134, Holt, Art. I, 354, COC, 210, 219, 254.

[7]Perry, PCI, 378, 377, Marvin, FBM, 261, 263, Pitkin, Art. I, 222.

[8]Holt, COC, 208.

Such a relational definition raises the question of whether consciousness as a unique and non-physical reality is thereby dissolved or merely restated so that its biological basis and objective reference are emphasized. There is a formal presumption in favor of the latter conclusion, for a relational definition, as noted in the last chapter,[1] may usually be translated into a definition by genus and species, and hence it is merely an alternative to the older method. Because consciousness can be defined in terms of relations and functions does not necessarily mean that its uniqueness thereby vanishes, any more than the sweetness of sugar vanishes when it is defined as $C_{12}H_{22}O_{11}$.[2] The possibility remains open, therefore, that consciousness may be unique, and therefore "substantial," even when defined relationally.[3]

Whether there is anything unique and irreducible about consciousness for the realists constitutes a question that can be settled only through a further consideration of the attributes which they find consciousness to possess. To this problem attention may now be turned.

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[1]Cf. pp. 154-155, 113-114.

[2]The view that consciousness is a "new dimension" recognizes this qualitative uniqueness. Spaulding appears, however, to deny that a relational definition of consciousness is a true alternative to the dimensional theory.

[3]Sheldon, SSPD, 98, 181, 185. Cf. Lewis, MWO, 5.

E. INDIVIDUALITY AND BEHAVIOR

It is clear that some neo-realists, especially Perry, Holt, and Marvin, intend to deny uniqueness to consciousness. This is shown by the strong flavor of behaviorism that pervades their writings. If consciousness is only the behavior of the physiological organism it may truly be said to lose its supposed uniqueness. It would then be assimilated to the physical world.[1]

Perry calls attention to the fact that neo-realists are "in accord" with behaviorism and that they consequently go back to "the old Aristotelian view that we mean by mind only the peculiar way in which a living organism endowed with a central nervous system behaves."[2] Consciousness differs from bodies "very much as one bodily system differs from another."[3] Man must be considered "a part of nature."[4] Holt considers mind "the subtler workings of integrated objective

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[1]Whatever consciousness as a "new dimension" may be, it seems at least to be something that is irreducible to the world of space and time. When consciousness is defined in terms of such mathematical abstractions certain of its factors are no doubt emphasized. But its character as actually experienced seems more fully described as a reality that is also in time with some reference to relations of space.

[2]PCI, 378.

[3]Ibid., 377, PPT, 301, 303, Art. IV, 147.

[4]Perry, Art. X, 136.

mechanisms,"[1] and predicts that "behaviorism will be able to give a complete account of cognition. . . ."[2] Meanwhile he calls himself a confirmed behaviorist. Spaulding finds the relational view of consciousness "compatible" with behaviorism and refers favorably to its literature.[3] Marvin leaves the question open as to whether the "soul" exists as anything more than a one-to-one correspondence between states in the nervous system and behavior.[4] Pitkin, however, regards consciousness as "the crucial advance toward" the behavior of the organism,[5] and not necessarily behavior itself.

Now, if consciousness is nothing more than the behavior of the physiological organism, as this phase of neo-realism clearly implies, there is no escaping materialism. Since mind is body and body is matter,[6] then matter is the only existent reality. This means that molecules of matter somehow become so related in groups that they understand and ad-

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[1]FW, 93.

[2]Art. II, 395.

[3]NR, 89, 89n4.

[4]FBM, 266.

[5]Art. III, 457.

[6]Both mind and body are <u>really</u> composed of neutral entities, according to neo-realists. But since these entities do not exist but only subsist, mind and body are identifiable in the existent world.

just themselves to other groups or complexes. Consciousness would be, if behaviorism is true, clearly outlawed as a unique reality.[1]

But difficulties in this view at once arise. In addition to the fact that the term "consciousness" is used by behaviorists in a radically different sense from ordinary practice, though this is tacitly assumed not to be the case,[2] there remains the problem of time-transcendence which behaviorists cannot solve. If mind is something physiological, and hence material, there is difficulty in conceiving how it assimilates its past states[3] and formulates its plans for the

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[1]Holt recognizes that this must be the result of behaviorism but finds materialism to be the only tenable metaphysics. In a letter, addressed to the present writer, from Tenant's Harbor, Maine, under date of Dec. 17, 1936, Holt says: "I have learned that 'realism,' as I understood it and accepted it, necessarily leads to straight materialism. I am now a materialist."

[2]Burnham and Wheelwright, PA, 333, 329. Cf. Verda, NRLS, 107.

[3]The argument that memory can be accounted for by the continuance in the nervous system of "stored stimuli" or connections in the form of nervous arcs (Holt, COC, 246-247, 243-244, 233, 234, 238, 239, 227, Perry, PPT, 296, Marvin, FBM, 132)., lies open to two criticisms. First, physiology shows that the elements of a physical organism change completely in a relatively short time. Accuracy in memory could only be accounted for by postulating something that did not change. Such an element of organization would be non-physical. (Cf. Verda, NRLS, 129.) Secondly, the factor of recognition would be omitted. Memory is not only the repetition in consciousness of past states, but it includes also recognition that these past states have been present in the same mind. (Brightman, ITP, 193). "Recognition" is a time-transcending fact that is more than a physiological occurrence in a given moment.

future.[1] Sheldon pertinently inquires, therefore, how that function which is able to recall the past in memory and lay hold on the future in prediction can be identified with a material process which is confined to the present.[2] If the older theory of soul-substance erred by considering something merely static and supra-temporal,[3] this theory of neo-realism errs by interpreting it to be something solely dynamic and completely temporal. Mind is a process in time capable of combining its temporal states and surveying the past and future at a given moment. Apparently the factor of

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[1]The attempt to account for prediction on a physiological basis (Holt, COC, 243-244, 252-253, Pitkin, Art. III, 457, Perry, Art. IX, 169), fails to observe the time-transcending element and its recognition by the mind in any reference to the future. A mind that predicts and plans for the future joins at a given moment knowledge of occurrences which did not take place in that moment, and projects some expected occurrence beyond that moment. A particular end aimed at in the future is in some sense here and now, and the mind realizes itself to be entertaining this plan for future action now.

[2]SSPD, 218, 217, 212, 213.

[3]Spaulding's theory that the content of memory consists of non-temporal subsistents recognizes this supra-temporal factor but really argues for the substance he is trying to deny (NR, 442, 389, 485).

identity,[1] once assigned to substance, plays a role here which neo-realists fail adequately to explain.[2]

That, however, some neo-realists are themselves convinced of the embarrassments to which behaviorism leads, may be derived from two sources. In the first place, some of

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[1]There is a strong tendency in neo-realism to consider identity in consciousness explicable on purely physiological grounds. In his earlier writings Holt denied all "intrinsic unity" to mind (COC, 299, 297-298) and argued that volitions and even feelings and emotions were "impersonal" and in no wise sacred to the "subjective" realm (COC, 291, 287-288, 282-284, 294, 109-112, 300-301). He later amended these statements to show that mind, will, feeling, and emotion are not independent in nature but dependent on or even identifiable with the physiological organism (Art. II, 394, 396, 403, 402, 407-408). Perry finds personal identity largely in the experience of bodily activity (PPT, 285, 284, 304, 295) and declares that biological "interests" are "the defining forms" of life (PPT, 301, 343, 342, 344, 300). Pitkin is compelled to assert that the "directed activity" of the organism constitutes individuality (Art. III, 442, 437, 457). There are passages in Spaulding's writings which indicate that individuality rests with the activity of the organism (Art. V, 247, NR, 450), yet "creative synthesis" in mind is something unique and non-physical (Art. V, 247, 240, WAI, 25, 27, 31-32).

But such a physiological view of identity or individuality leads to serious difficulties. All physiological organisms and hence all nervous systems of human beings are the same in character or they are different. If they are the same the origin of differing interests, purposes, and selective principles receives no adequate explanation. The unique individuality of particular minds would then be a mystery. On the other hand, if physiological organisms differ in constitution the peculiar individuality of persons is conceivable but their ability to communicate common truths would be rendered problematic.

[2]Behaviorism does, to be sure, have some value as a statement of consciousness. It emphasizes, for example, the physiological processes that undeniably attend consciousness, and points to the fact that behavior does furnish leading clews to what consciousness is.

them criticize behaviorism severely. Montague rejects it explicitly on the ground of its materialistic implications.[1] Spaulding observes that behaviorism errs in denying the whole that results from the organized elements of consciousness.[2] Marvin regards the relational view of mind as a denial of materialism and behaviorism.[3] Perry remains loyal to behaviorism but evidently repudiates its materialistic implications since he criticizes materialism,[4] and urges that a physiological account of mind must be "supplemented by a moral account."[5]

A second reason for believing that neo-realism wavers in its espousal of metaphysical behaviorism and hence in the argument that consciousness can be assimilated to the physical world, is that attributes are ascribed to mind which indicate its uniqueness. The following characteristics illustrate this point.

Reason, it is argued, determines behavior. It has

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[1]Art. IV, 271-272.

[2]NR, 477-478.

[3]FBM, 263. He also argues that the naturalist must make room for such "supernatural" facts as man's achievement of logical, moral, and aesthetic value. Ibid., 158.

[4]PPT, 82-84, 108-109.

[5]Ibid., 300, 330-331.

"genuine efficacy" in testing, applying, and guiding interests and beliefs,[1] and thus it enables the individual to deal with the novel in adjusting himself to his environment.[2] The mind is even qualitatively discontinuous with the physico-chemical system with which it is correlated,[3] enjoys relative freedom from the limitations of that system,[4] and causally exerts control over it,[5] though still abiding by some of its laws. An organization is found in consciousness which remains constant despite its changing constituents,[6] and therefore consciousness possesses a non-spatial and non-temporal character.[7] These attributes cannot characterize a purely physical complex.

One may conclude, therefore, that consciousness constitutes a unique and irreducible reality, and that some neo-

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[1]Perry, Art. X, 168, 157, 137, 166, 143.

[2]Spaulding, WAI, 63, 80-81, 105-106, Pitkin, Art. III, 457.

[3]Marvin, FBM, 265, Spaulding, NR, 477, 478, 449, WAI, 27, 25, 31-32.

[4]Perry, PPT, 343, cf. 253, 254, Spaulding, NR, 392, 393-394, 395, 396, 427, 448, WAI, 46, 50, 58, 29-30.

[5]Spaulding, WAI, 105-106, 102, Marvin, loc. cit., Perry, ibid., 341.

[6]Spaulding, ibid., 25, NR, 449.

[7]Spaulding, NR, 449.

realists, especially Spaulding (also Montague), and in a less marked degree Perry[1] and Marvin, recognize their failure to assimilate it to the physical world. By defining consciousness as a relation between the organism and its environment these realists ascribe to it attributes which show it still to be a reality in its own right. Not only do they fail to destroy the uniqueness of this reality, but they seem at times to argue expressly for it.[2] The probability noted above that a relational definition of consciousness would turn out to be a restatement of the uniqueness of mind in different language seems, therefore, to receive some confirmation.

The realistic conception of consciousness must in some sense, therefore, be a restatement of a kind of substance. So far as these realists actually believe that mind is a qualitatively unique reality that transcends the physico-chemical world and freely exercises its capacity to aid the organism in adjustment to its environment, thereby persisting as a unified organization while its elements change,

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[1]Perry vigorously attacks naturalism, believing that the entities of logic and mathematics, which are presupposed by physical science, and the non-physical phenomena of desire and will refute it (PPT, 108-109).

[2]The declaration that neo-realism reduces to "a speculative reconstruction of the world of physical science" (Rogers, Art. I, 143), thus appears to be an exaggeration.

they are arguing for a kind of spiritual substance. Yet such a conception of mind represents only a trend in neo-realistic thought and remains at best a far cry from what most neo-realists intend. In the light of the above criticisms passed on the behavioristic and materialistic features of the neo-realistic view of consciousness, this trend toward substance appears, nevertheless, to be the direction in which a tenable view of consciousness must move. The attempt by neo-realists to conceive consciousness without a theory of substance may be said, therefore, largely to fail.

A final criticism of spiritual substance is implied in the realistic argument that consciousness is reducible to a qualitatively neutral reality. Some attention must be given to this view.

F. MIND AND SUBSISTENCE

The "primitive terms" or simples to which consciousness may be analyzed are interchangeable with the elements that make up matter.[1] Consequently, mind loses its qualitative significance and becomes a "neutral aggregate."[2] It is "no new substance"[3] but a complex of the simpler neutral enti-

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[1]Perry, PPT, 310, 277.

[2]Holt, COC, 131, Art. I, 355.

[3]Holt, COC, 308.

ties.[1] The contents of mind are neutral and thus are "of such stuff as logical and mathematical manifolds are made . . . ."[2] This means that spiritual substance does not exist for these neutral elements as neutral only subsist. "A mind or consciousness is a class or group of entities within the subsisting universe. . . ."[3]

Here once more appears the difficulty of how the neutral elements of consciousness are to be conceived since they are never given in experience as neutral. The reduction of mind to such entities is an appeal to obscurity. This view is as baffling as the transcendent soul so far as its ability to explain the given processes of consciousness goes. Indeed, the neutral entities do in some measure perform the function of substance, for they are the potentialities out of which mind arises. But to derive mind from principles, concepts, and entities which are never given in experience is an appeal from the given and known to the not-given and unknown.

But aside from this difficulty, there remains the prob-

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[1]Holt, COC, 114.

[2]Ibid., 167, 182-183, Art. I, 373, Marvin, FBM, 263, Spaulding, WAI, 152-153. Pitkin confesses ignorance of what the "mind stuff" is, out of which the empirical phases of things are made. Art. I, 203.

[3]Holt, Art. I, 373, cf. COC, 220-221, 254, Marvin, FBM, 263.

lem of accounting for the organization of these entities into such a complex as consciousness. If they themselves possess the ability to accomplish this arrangement, they would seem to be of a dynamic character foreign to their definition as simples. If they do not have this ability some other and even more mysterious agent must be invoked to bring about their conjunction, or else it must be dubbed a result of chance. Either of these alternatives shirks the responsibility of explanation. If the neo-realist replies, as he doubtless would, that he has no such obligation to explain how these entities become organized, one may point out that he has no right to construct a realm of subsistence unless he explains how its constituents are related to existents.

There would seem to be fewer difficulties involved in the conclusion that spiritual substance is itself ultimate and qualitatively irreducible. The entities which neo-realism considers neutral are given in the complex of experience as elements in an immanent but organic whole. They may be understood as parts in this whole. The argument that complexes can better be understood through their wholes and parts than through their parts alone has already been examined and defended.

Spiritual substance still remains a tenable concept.

G. CONCLUSIONS

Examination of the neo-realistic criticisms of spiritual substance makes the following conclusions apparent. First, the argument that spiritual substance cannot be observed in experience since introspection is an unfruitful method for studying consciousness, has not been demonstrated. Second, neo-realists clearly show that belief in a transcendent, non-empirical, and unknowable soul-substance cannot be justified. Third, any theory of spiritual substance must allow that substance may be analyzed into constituent parts, as neo-realists assert, but the latter do not establish the fact that explanation through these simple parts alone is as complete as through further reference to the substantial whole to which they belong. Fourth, if spiritual substance be considered the exclusive possessor of perceptual data that have no objective character, solipsism results, as neo-realists contend, yet substance as the unity of data which still possess an objective reference, remains a tenable hypothesis. Fifth, the realistic argument that spiritual substance does not exist because unique and private factors in consciousness are non-existent or of negligible importance, is denied by experience, though the argument rightly empha-

sizes the fact that substance cannot be completely monadic.[1] Sixth, discreteness remains an undeniable characteristic of consciousness but the organic and relational factors in it still make substance a reasonable view. Seventh, the neo-realistic denial of spiritual substance because experience is non-active, i. e. because it is presentative and not judgmental, betrays a disregard for the empirical fact that interpretation attends perception. Eighth, one of "the six" neo-realists, namely Montague, explicitly argues for spiritual substance as a form of potentiality, and though this view stands in danger of explaining consciousness by reference to obscurity it emphasizes the self-transcendent character of substance. Ninth, definition of consciousness as a relation amounts to a restatement of the concept of spiritual substance with special emphasis on its physiological basis and objective reference. Tenth, the behavioristic and materialistic trend of neo-realism encounters difficulties from which spiritual substance, defined as an organic, unified, private, active, self-identifying, and self-transcending reality, would provide an escape. Eleventh, some neo-realists, especially Spaulding, less notably Marvin, Pitkin, and Perry, indicate some interest in such a supplement to

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[1]There is, as Hartshorne argues, a "fundamentally social character to experience" (PPS, 6, 8).

their views but do not offer a systematic development of it. Twelfth, the neo-realistic effort to reduce spiritual substance to neutral substance raises more problems than it solves, since the nature of neutrality is not explained nor the principle of organization clarified.

CHAPTER VII

BEING AND EXISTENCE

The problem remaining to be solved is whether the neo-realistic criticisms of substance as an ontological principle are valid. This issue includes the query as to whether realists adequately provide for the functions which the concept of substance once performed in ontology.[1] The present chapter will be devoted to these subjects.

That neo-realists deny to substance a place in ontology is quite clear.[2] There is for them no one "substance. . . , stuff. . . , unknown, or unknowable underlying entity, to which all other entities are reducible. . . ."[3] Nor does a plurality of substances comprise ultimate reality. "The simple entities, of which in the last analysis all things are composed, have no substance,"[4] except in the meaningless

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[1]By ontology here is meant the theory of ultimate reality, as distinguished from cosmology and psychology, though the latter deal with areas within the ultimate reality.

[2]Knudson asserts that in the "substantistic . . . sense of the term" neo-realists even "repudiate all ontology" (POP, 407).

[3]Spaulding, NR, 435.

[4]Holt, COC, 135, Art. I, 372.

sense of having "neutral" substance.[1] On the other hand, "they are a class."[2] Since any kind of substance is a case of incomplete analysis,[3] an accurate interpretation of being cannot be in terms of it.

Precisely how this rejected concept of substance may be defined, is not altogether clear. Usually the term is taken by realists to mean a supposedly irreducible complex, of material or spiritual quality, which bears the relation to particular entities of a substratum to its attributes, or of an organic whole to its parts.[4] One is left to suppose that ultimate being[5] is entirely innocent of any such complex, whether it is construed as an all embracing one in which concrete particulars inhere, or as a plurality of units from which particular entities arise. The failure of neo-realists explicitly to define the concept that is rejected gives rise to considerable difficulty in assessing their criticisms.

If substance must yield to analysis and reduction the ultimate elements of being cannot be substances. The realis-

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[1]Holt, COC, 136.

[2]Ibid., 135.

[3]Perry, Art. IV, 127.

[4]This definition may be inferred from the denials of substance just cited, and from the criticisms of it which appear below.

[5]The term "being" and its relations to "reality," "existence," and "subsistence" will be explained on pp. 269-270, 278-280.

tic argument that being is a plurality of simples implies the absence of substance, since the latter must be considered a complex. Consequently, the ensuing discussion of simples is also a treatment of an implicit criticism of substance.

A. THE PLURALITY OF SIMPLES

For neo-realists the fundamental elements of the universe are "simple ones."[1] These "simples in which analysis terminates" are "ultimate immediacies," "non-relational" or "indefinable entities."[2] No ground exists for affirming "that there is one simplest entity or one first principle . . . ."[3] Rather are there many entities of which simplicity may be asserted. With the advancement of knowledge many "supposed differences" between entities will turn out to be purely matters of form or complexity. ". . . Ultimately perhaps all so-called substantial differences will . . . be thus resolved."[4] Simples are drops of mere being, not a kind of being, for "that which all things are is not a . . . property

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[1]Holt, COC, 154, 135. What elements are considered simple is explained below (pp. 270-272). For the purpose of the present discussion it is unnecessary specifically to identify them.

[2]Holt, et al., NR, 32.

[3]Holt, COC, 154.

[4]Ibid., 64.

by which some things are distinguished from . . . others."[1]

These "primitive terms" of which the universe is composed are to be distinguished from complexes, for the latter are "defined in terms of the simple. . . ."[2] But on the other hand, "the simple cannot be defined in terms of the complex."[3] Simple entities are not only "mutually independent"[4] but are also "independent of the complexes of which they are members."[5] They cannot be "wholes" or "values of variables" for this would belie their simplicity and make of them complexes. Nor can they imply or be implied by complexes since implication is a relation confined to propositions or combinations of propositions, i. e. to complexes.[6] Though these elements may not be given in experience apart from complexes, they are nevertheless discernible within their context.[7]

It is quite clear that if there are such entities as absolute simples which can in no sense be construed as com-

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[1]Holt, COC, 20, 21-23.

[2]Ibid., 63.

[3]Loc. cit.

[4]Perry, Art. IV, 118.

[5]Ibid., 119.

[6]Ibid., 118-119.

[7]Ibid., 127. Pitkin says that some "genuine simples are given in experience" (Art. III, 406n), though he probably means not that they occur alone but in a broader context.

plexes, substance must be abandoned as an ultimate concept in ontology. However substance may be defined, whether as the substratum in which attributes inhere, or as the unity and synthesis of relations, or as the self-dependent and permanent factor in change, or as the element of wholeness which conditions parts, it must be considered a complex. The validity of this implied criticism depends, therefore, on one's answer to the question of whether the universe is reducible to utter simples.

Now any realm of discourse rests finally upon a limited number of indefinables.[1] A few basic concepts must be taken to have relative fixity and clarity of meaning without definition in terms of anything else. Otherwise arguments would be circular or else become embroiled in an infinite regress. In this sense neo-realists are justified in concluding that the fundamental elements of the universe are "indefinable" and "immediate." These ultimate simples may be considered the indefinables in terms of which the universe is to be explained.

If, however, the indefinability of simples means, as the passages quoted above imply,[2] that these simples are characterless save for the fact that they are elements of pure be-

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[1]Burnham and Wheelwright, PA, 19, 18, 82.

[2]Pp. 242-243.

ing, serious difficulties arise. On the one hand, if the world of concrete fact is reduced to utter simples or drops of pure being, it is explained in terms that are meaningless abstractions. Bare being, as Hegel said, is nothing.[1] How these ultimate entities could even be distinguished from each other or from the complexes in which they are found remains unclear, if they are genuinely simple. Absolute simplicity can only mean indeterminacy. Furthermore, on the assumption of complete simplicity there is no explanation for evolution.[2] The view that complexity and value develop out of abstract and characterless simples leaves too many problems unsolved. These effects could scarcely have arisen from such simple causes.

On the other hand, if simplicity means only "relative" simplicity, the elements in which analysis terminates are complexes and not simples. So soon as one concedes that these ultimates have definite and distinguishable natures they become complexes, though they may be the simplest complexes which thought can discern. "Indefinability," when applied to these ultimate entities, can, therefore, only mean

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[1]ENC, 87, 86. Holt recognizes this (COC, 21), but he does not appear to realize that utter simplicity signifies bare being.

[2]The neo-realistic conception of evolution is discussed below, pp. 294-299.

that the elements of the universe have a relatively simple, yet definite and unambiguous character. One must conclude that these primal entities, whatever else they may be, are in a measure complex. Such being the case, the implied argument that substance cannot be an ultimate concept in ontology because the only usable concepts are simples, loses its force.

That neo-realists themselves, even including Holt and Perry, did not long retain or perhaps ever consistently maintain the notion of complete simples, follows from two sources. In the first place, simples are in some passages said to possess definite properties. They enjoy "distinct self-identity" regardless of context,[1] manifest "a certain serial order" which is "intrinsic to them,"[2] and bring with them when related "a character which they possess quite independently and by themselves."[3] Secondly, simples can be identified and distinguished from each other. It is possible to discriminate only "the relatively simple," but among these may be found the concepts of identity, difference, number, and the negative.[4] In studying the universe one must start "with a

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[1]Holt, COC, 104.

[2]Ibid., 107.

[3]Perry, PPT, 316.

[4]Holt, ibid., 154.

pluralism of terms and propositions, all of which have "distinct" . . . being."[1] Since propositions involve terms in relation they are complex. Therefore, complexes are ultimate.

Though "simples" are neutral in quality, in the sense that they are themselves neither material nor spiritual, but are constitutive of these two realms,[2] they range widely in the degree of their complexity. Neutral entities form classes whose differences in complexity and concreteness range from logical and mathematical terms and propositions to ideals and values.[3] There are "kinds [of entities] that are irreducibly different, and there is an irreducible plurality of these kinds."[4] Realists hold to an "ontological pluralism . . . of entities, both simple and complex. . . ."[5] But even these simples must be relatively complex.

It can only be concluded that the argument against substance from the fact that the universe can be reduced to sim-

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[1]Holt, COC, 51, 66, 103, 104, Montague, Art. IV, 253.

[2]Perry, PPT, 316, 310, 277, 307, PCI, 372, Spaulding, NR, 11, xviii, Holt, COC, 136, 103, 52, 64, Art. I, 372, 355; Montague expresses some doubt about the efficacy of such a notion (Art. IV, 275-276).

[3]Holt, COC, 154-160, Spaulding, NR, 494, WAI, 137-140, 143-144, 247, Marvin, FBM, 143-144, Perry, PPT, 311.

[4]Spaulding, NR, 435.

[5]Ibid., 43, cf. Art. V, 221.

ples carries no weight. The notion of complete simplicity involves such abstractness as to make ultimate elements indistinguishable and evolution miraculous. "Relative" simplicity, however, also means relative complexity. But since neo-realists indicate in actual practice that simples are of a determinate character, they can be only relatively simple. Thus the elements in which analysis terminates are relatively complex. Since substance is a complex, the possibility remains that some of these elemental units may be substances,[1] or even that they may be related to form one substance.

More direct criticisms of this concept may now be considered.

B. CRITICISMS OF SUBSTANCE

While the criticisms of substance in ontology are somewhat similar in logic to those already examined, they differ in context and significance from the latter. Accordingly separate consideration must be given to them.

In ontology, says the neo-realist, as well as in the realms of mind and matter, the concept of substance represents an inveterate and "almost insurmountable" habit of

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[1]Whether they actually are substances will be determined below, pp. 274-278.

thought.[1] To counteract this habit realists employ the words "simple" and "neutral" when referring to ultimate entities.[2] That substance is a habit of thought in ontology as elsewhere no one can deny.[3] It is common to suppose that the world of concrete fact roots in some underlying reality or substratum. But not all habits of thought are vicious, they often express a profound truth. If, therefore, the habit of thinking in terms of substance is to be given up neo-realists must show that the theory of "simple" and "neutral" entities conserves its value and escapes its weaknesses. Furthermore, any concept is a habit to some degree. It must represent a reasonably well established form or convention of thought else it would be meaningless. In rejecting the concept of substance realists are merely substituting a newer habit for an old one. It is, as observed before, the validity of the concept as a means for interpreting reality which must determine its retention or rejection and not its origin or presence in habit.

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[1]Holt, COC, 135, 62, 64, Spaulding, NR, xvii, 30, 31, 353.

[2]Holt, ibid., 135, 64.

[3]Whitehead indicates the fixity of this habit, but believes that the substance-attribute formula represents "a high degree of abstraction." Hence it is an instance of "the fallacy of misplaced concreteness." (SMW, 74, 75, 77-78.)

The first relatively direct criticism passed on substance as an ontological concept or principle lies in the argument that it is a speculative dogma. By this dogma is meant "the assumption for philosophic purposes that there is an all-sufficient, all-general principle . . . that adequately determines or explains everything."[1] Such a concept springs from "a purely rational source,"[2] and cannot be empirically demonstrated. Belief in a "numerically single underlying substance or substratum-like core" rests on a speculative idea.[3] "Absolutism," whether idealistic or naturalistic, "is the expression of this motive. . . ."[4] The assumption that there is "something of which everything is a case" is an arbitrary speculation which lacks clear definition and proof.[5]

That this criticism of substance cannot be serious may be concluded from the fact that a speculative ideal of some sort is inevitable.[6] An ideal of thought is presupposed

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[1]Holt, et al., NR, 16-17, Perry, PPT, 64, 65, 165.

[2]Spaulding, NR, 352, Perry, ibid., 165.

[3]Spaulding, ibid., 353.

[4]Perry, ibid., 165, 64, 65, 74, 75.

[5]Ibid., 65.

[6]Cf. Schilpp's discussion of alleged <u>Standpunktslosigkeit</u> in philosophy (Art. I).

just as much in the denial as in the assumption that there is a universal principle or substance out of which rocks and rills, men and other mortals, may be derived. If one denies that there is one underlying element of which every concrete thing is a case, and asserts either that there are many such elements, or that there are none at all, it is presupposed that the speculative ideal is to reduce the facts of experience to a plurality of first principles, or to none. To "demonstrate" either that there is or is not an ultimate substance would require an examination of every fact in the universe[1] from every conceivable point of view— an impossibility for a finite mind. Some measure of dogmatism is, therefore, present in any relatively general statement, for it is a conclusion from observation of a few facts about the nature of many. A reasoned metaphysical view is the assertion of an ideal which thought tends to approach and which it would attain if a complete examination of the whole universe were possible.

If this criticism means that belief in a universal substance rests on an unexamined and emotional demand or assumption that there be some changeless ground for the universe,[2] two rejoinders are appropriate. In the first place, the

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[1]Cf. Ayer, LTL, 24.

[2]Cf. Holt, et al., NR, 32-33.

search for logical ultimates, the neutral entities of neo-realism, may as reasonably be said to arise from a similar motive.[1] The logical and mathematical entities of realism possess a fixity and aloofness from change comparable to an absolute substance. In fact, belief in these entities is "one of the emotionally most comforting notions that is producible by metaphysics."[2] Secondly, some thinkers who have held to an absolute ground or substance have arrived at their conclusion by rigorous analysis just as truly as these realists have at theirs. The relentless logic and clear empirical reference of Hegel's Phänomenologie des Geistes, the intricate and detailed analysis apparent in Alexander's Space, Time, and Deity, and the mastery of science shown by Whitehead in Process and Reality, testify to this fact.[3]

Whether there is a single underlying principle can, therefore, only be determined by an appeal to experience. The theory of substance is not to be rejected because it represents a speculative ideal.

A second criticism of substance by neo-realists is that such a concept would be too formal, universal, and general to

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[1]Sheldon, SSPD, 226, 227.

[2]Parkhurst, RLR, 42.

[3]For Hegel the underlying principle is the absolute idea, for Alexander space-time, for Whitehead organic relation, or creativity.

serve any theoretical or practical purpose. "An ultimate principle . . . in which every concession has been made to generality, is grossly inadequate to everything to which it applies."[1] The nature of concrete objects and their relation to the first principle would be left out of account because this view would be "consistent with anything."[2] A universal substance "by reason of being everywhere present is nowhere of interest. Nothing can be said or thought about it."[3] Even if the ultimate elements of the universe are held to be many in number but all of one substance the term substance "comes thereby to denote everything, and hence to connote nothing."[4]

A universal principle that possessed no other determination than that of complete generality would, it is true, be a useless metaphysical notion. It would embody all the difficulties found in the concept of bare being. But such a concept could scarcely be called substance, for, as already noted, substance can only be adequately defined as a notion which refers to a definite and characterizable reality. This criticism is, therefore, valid only against a concept of uni-

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[1]Perry, PPT, 167, 168.

[2]Ibid., 167, 176.

[3]Holt, COC, 63, 62.

[4]Ibid., 136, 135.

versal and vacuous being, and not against substance when properly defined.

If the argument is intended to show that substance cannot be universal or general and also determinate and distinguishable, one may doubt its weight. There need be little more difficulty in conceiving the generality or universality of a basic substance than in conceiving a less general "universal." For example, the universals "man" and "animal" possess wide generality, yet one may speak intelligently, though in abstraction, about the definite class term "man" as distinguished from the class term "animal." The more general concept of substance could also be definite in character even if present in all particulars. Naturally it could not be defined in distinction from other concepts of equal generality, for there would be none, but it could be defined in contrast to less general ones. It would mean whatever is included within it.[1] To say that a concept is more general than all others means that it is determinate, as are they, but that it differs from them in degree of generality.

Whether "the rich nature of concrete objects"[2] would be overlooked if one held to a universal substance, does constitute a difficult problem. The great qualitative variety in

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[1] Hocking, TOP, 371.

[2] Perry, PPT, 167.

the nature and appearance of particular things makes it hard to conceive how they can all root in one basic principle of being.

But, two considerations help to meet this difficulty. In the first place, many apparent qualitative differences prove, upon analysis, to be only forms of a more fundamental reality. The "loudness" of sound, for example, is reducible to the intensity of vibrations, and the "weight" of a ball may be considered the rate of attraction between two bodies. Many such qualities are reducible to quantities. Hence there can in no case be as many genuine qualitative differences as one may at first suppose. Secondly, there is a certain practical and hypothetical element in one's thought about any quality. For many generations it was practically advantageous to assume the "impenetrability" of a material object, but this is no longer the case. Matter can be better understood, it is now thought, without assuming its impenetrability. Qualities are to some degree instruments for dealing with reality[1] and not necessarily absolute forms of it.[2] The fundamental problem, therefore, is whether there are fewer practical difficulties in construing reality as (qualitative-

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[1]The neo-realistic preference for a relational or quantitative statement of qualities indicates a belief that qualities are largely of this character.

[2]Cf. Hartshorne, PPS, 207.

ly) one substance or as many.

That belief in one qualitatively ultimate substance is no more, and perhaps less, difficult to maintain than belief in a qualitative pluralism, must be asserted. The relation between a universal substance and concrete objects involves the same problem that any theory of universals must solve. Particular instances of any universal are alike, but they are also unlike. If they were not unlike there would be no point to calling them particular. Non-universality, i. e. particularity, means distinctness or uniqueness. This uniqueness must be reconciled with universality even by the neo-realist. If, now, it be assumed that reality is qualitatively a plurality of substances and not one fundamental substance, the problem of how the diverse and particular is related to the universal is multiplied by the number of qualities that are taken to be universal. It would seem simpler to explain the relation of particular and unique objects to one underlying universal substance than to show their relation to many different universal entities.[1]

In consideration of these facts, the generality involved in the concept of ontological substance does not appear to be a decisive argument against it.

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[1]The relation of universal and particular is further discussed below (cf. pp. 261-263).

As a third argument against ontological substance, neo-realists maintain that substance presupposes a unity or oneness which reality does not possess. Substance is denied not only by the plurality of qualities just observed, but also by the fact that the fundamental elements of the universe are numerically distinct. "No all-inclusive . . . One in . . . number is empirically discovered,"[1] and hence "no one . . . substance"[2] can be considered basic in reality. Though the universe has unity,[3] it also has variety and disunity.[4] There is no more unity in it than in "a system of individuals, classes, series and the like, that subsist side by side" but "do not imply one another."[5] The unity discernible is that of an aggregate and not of an organic whole. Evil, error, and contradiction interfere with a theory of complete unity.[6] Furthermore, it is meaningless to speak of an absolute unity for no provision would then be made for the proportion of unity to the undoubted plurality and variety of the universe.[7]

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[1]Spaulding, NR, 436, 437.

[2]Ibid., 435, 43, 317.

[3]Perry, PPT, 245, 187, Holt, COC, 23, 165, 164, Spaulding, ibid., 436, 317.

[4]Perry, ibid., 245, Holt, ibid., 48.

[5]Spaulding, ibid., 436, 437, Art. V, 221.

[6]Holt, COC, 48, 51, Spaulding, WAI, 255, NR, 520.

[7]Perry, PPT, 187.

Thus "the new realism tends . . . to be metaphysically pluralistic rather than monistic."[1]

The problem here is to determine whether there is sufficient unity in reality to justify belief in substance. That reality possesses some unity, is correctly pointed out by realists. The fact that it is a system of entities and not a chaos makes this clear. But if system means only that reality is an aggregate of externally related elements, then substance truly cannot be the basic principle.

It is hard to avoid the persuasion, however, that reality is more than a loose collection of independent entities. The system within it indicates a significant underlying prin-

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[1]Holt, et al., NR, 33. The neo-realistic interpretation of God allows for some measure of unity in being, but such unity is for most realists not thoroughgoing. Perry holds that realism is "theistic," but God is for him merely "the larger totality of life," a "collection of interests" (PCI, 379, 375). Marvin is persuaded that if there is a god, he cannot be the highest or most universal entity or substance (FBM, 162, 156, 159). Holt's view of God is not articulate, though he does say that God is in and through the physical and mental manifold (COC, 295). Spaulding considers God "the totality of all values" and as such "the unity of their organization" (NR, 517). God is both immanent in and transcendent over the world (loc. cit., 514, 520, 521, WAI, 258, 257). Yet the irreducible reality of evil prevents God from being the unity of the world in a final sense (NR, 520). Montague, however, does hold that God is a genuinely universal and unifying principle. Though God is not omnipotent but finite, he is "an ascending force, a nisus, a thrust toward concentration, organization, and life. . . ." He is the "unitary and . . . infinite cosmic consciousness" (BU, 84), the ubiquitous potentiality of being (ibid., 82). "That in God which is not God" is his environment, i. e. the world (ibid., 84). Here is genuine cosmic unity.

ciple. First of all, the manyness of an aggregate implies an underlying oneness. Before the elements in such a collection can be counted as "first, second, third," etc. it is presupposed that each is a value of an underlying one.[1] Secondly, the external relations between these ultimate entities cannot be the only relations which they have. The fact that an individual is not a universal or the fact that a class is not a series exemplifying asymmetrical relations, indicates that these terms, taken by Spaulding to be ultimate, are cases of a reality that bears this character. It is a part of their nature to typify this reality just as much as it is their nature to be independent and externally related to one another. One brick in a wall may be externally related to another brick at its right and thus "make no difference to it," but "it is something to the brick that it is in space" and thereby endowed with the possibility of being to the right of its neighbor.[2] These ultimate elements are related through the underlying reality or principle in which their natures are grounded.

Such an underlying reality is by no means an abstraction. It is rather a principle manifested in definite ways, and is therefore one that is capable of at least these manifestations. Nor does such a theory of unity leave the relation or

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[1]Cf. Plato, Parm., 164, 165.

[2]Hocking, TOP, 368.

proportion of unity to plurality unexplained. It maintains that all plurality is a case of the one unity.[1] Consequently this view has an advantage over the notion of an aggregate. For how it happens that there is just the amount of unity which realists allow is not explained by them. Unity and plurality are left side by side as ultimate inexplicables.

This criticism has value therefore in calling attention to the pluralistic aspects of experience, but it fails to make necessary the abandonment of substance as the basis of unity in reality.

Another criticism of substance is the argument by neo-realists that simple entities do not "belong" together.[2] A theory of ultimate substance would require that simples form some kind of exclusive organization and this they cannot do. Materialists and idealists have both erred in making this assumption.[3] The realist resists "every impulse to provide a

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[1]Belief that there is an ultimate unity in reality does not commit one to a block universe in which a relative independence and uniqueness is denied to finite beings. The fact that logical and moral errors occur may be taken to indicate a measure of self-direction and independence on the part of these beings. Moreover, every item or fact in the universe possesses at the very least such individual uniqueness as just that part of the whole and no other must contain. On the other hand, evil may be given in the nature of the universe without destroying its ultimate unity.

[2]Perry, Art. IV, 128.

[3]Spaulding, NR, 258, Perry, Art. IV, 128, Holt, Art. I, 366.

home for the elements of experience."[1] In fact "the simple elements are nowhere. They may enter into this or that group, but they do not belong to it. . . ."[2] Since these simples are "the entities "at large" and belong . . . to no constituency"[3] no ultimate "owner" of them exists (or subsists). Such ultimates as "numbers, geometrical figures and . . . all the abstract entities of science" are "accessible to all individuals" and thus "can be passed around like beetles or postage stamps."[4] It is "the fallacy of exclusive particularity" to assume that "a particular term of any system belongs to such system exclusively."[5]

It is undoubtedly true that some simple notions, e. g. number, difference, implication, are present in many, and perhaps in all, complexes that can be mentioned. In this sense they do not "belong" exclusively to any one complex in which they appear. But what the presence of these simples in a wide variety of complexes must mean is that the simples are applicable to thought about many different complex things.

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[1]Perry, PPT, 316.

[2]Perry, Art. IV, 128, PPT, 316.

[3]Perry, Art. IV, 129, cf. 119.

[4]Holt, COC, 120.

[5]Holt, et al., NR, 14.

They are universals and a universal has many particular instances, each of which differs somewhat from all other particulars. To hold that a universal or simple, e. g. the notion of "difference," as such enters into each complex and individual thing about which "difference" can be asserted, breaks down the distinction between universal and particular. This would mean that there are as many universals as particulars— a manifest absurdity. The only alternative rests in the belief that universals refer, or apply to a number of particulars. They are present in particulars but are also different from them.

From this point of view a universal or simple is not an autonomous entity that bears no intimate connection with its particular instances. It actually belongs to or is dependent upon those instances.[1] Not only is the universal "horse" discoverable in its particular instances, i. e. in definite and particular horses, alone, but it is also derived from them. Its nature can only be determined by its concrete instances. Formulation of a universal represents the observation of a limited number of cases where the same kind of generality is present. Hence a universal is never known as such, i. e. in all of its instances, or apart from any of them. The construction of universals apart from particular

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[1]Hasan, ROR, 310.

complexes is a bit of rationalism unwarranted by logic[1] and certainly contrary to the neo-realistic cause of radical empiricism.

If the universal elements of reality are intimately bound to the instances where they occur, but still constitute a relationship beyond those instances, the concept of substance remains a tenable notion. Particulars, e. g. golf balls, are not loose collections of such universals as "difference," "implication," "whiteness," and so on. They are complexes of a unique character, different in some respects from every other simple or complex entity in the universe. The presence of universals in them means that relations exist between these unique complexes and the rest of the universe. Substance is the ground of individuality, the means of reconciling the oneness in manyness, the uniqueness in generality, which every particular thing manifests. The argument that universals ultimately typify an underlying and universal substance has already been presented.

Another criticism which neo-realists make of substance is that a basic activity or a causal agency in being, such as the notion of substance provides, is an unjustifiable assumption. It is a return to "animism" to suppose that reality

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[1]Royce observes that "any definition of absolutely independent beings . . . is, in all regions of the universe, . . . a hopeless contradiction" (WAI, I, 138).

manifests an active, striving force, or substantial agency.[1] Hume showed the "irrelevance" of this notion to causality,[2] and scientists have been gradually abandoning "the notion of power or . . . activity"[3] as an ultimate principle of explanation. "Agency depends entirely upon the inner experience of activity,"[4] and the latter turns out to be "a manifold of terms in relation."[5] Thus causality, to which activity is fundamental, can only be a manifold of this type. Causality is the law of succession or change which terms and relations manifest.[6]

This criticism rightly emphasizes the fact that reality must not be considered a vague reservoir of all imaginable powers. Unless the causality resident in it is of a determinate character, the postulate of causality is an appeal to obscurity, a suggestion of indefinite potentiality. Reality does manifest itself in changes, the nature of which can be

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[1]Marvin, Art. V, 625-627, FBM, 117. Cf. Spaulding, NR, 515, WOC, v.

[2]Marvin, FBM, 117.

[3]Perry, PPT, 99, Art. IV, 110.

[4]Perry, PPT, 99.

[5]Ibid., 100. Holt believes activity is intrinsic to propositions (COC, 98, 17-18, 303-304, 164-165).

[6]Perry, PPT, 100, Marvin, FBM, 117, Holt, COC, 285. Cf. Spaulding, Art. V, 203, 196.

described as series or successions in which terms and relations shift. If the temperature rises above 32° Fahrenheit a cube of ice will melt. The complex of terms and relations constituting the cube assumes a different form, i. e. it becomes another complex because its terms and relations have changed. This change may be considered a series of correlations between the terms and relations that made up the cube of ice and those that make up the resulting volume of water.

With such an eviscerated notion of causality, however, certain difficulties arise. If causality were no more than the mere succession of relations there would be no explanation of why terms and relations change. Merely to assert <u>that</u> they do leaves a fundamental question unanswered.[1] Either one must assume that terms and relations themselves possess the ability to terminate and consummate association, or, that this function is accomplished by some third reality. The first alternative would require a complexity in terms and relations which is denied by their definition. It can only be concluded that terms and relations change through the agency of wholeness which is present in their conjunction.

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[1] It is a mistake to argue that this question is foolish since it is tantamount to asking why the given facts are as they are. The philosopher is obligated to look at every fact from all possible angles, to raise all possible questions about its origin and significance, and to propose an explanation for all phenomena. Any other course would be philosophic incompetence.

This element of wholeness also provides the factor of permanence which change requires. If A through relation to B causes B to become C, a series of relations arises. There is a change in A when the relation to B occurs. But A does not pass into B. When B is changed into C by its relation to A, there is no completely new creation of C. The latter is B, plus a new element. The new complex is called C. This element of permanence is required in order for change to retain its genuine meaning. Change simply is not succession alone. Causality involves the passage or "transeunce" of effects from one factor in a causal series to another. Unless causal agency, an element of permanence in change, is assumed at the beginning of the series, these effects would continually vanish into their successors. Cause and effect would be identical.

To hold that there is no causal agency in reality leaves the origin of activity in the physical world with no adequate explanation. Nor does the process of evolution receive a satisfactory interpretation. Growth and development do not suddenly occur without some cause. It seems reasonable to suppose that there is in reality a substantial agency which is the ground of change and development, but which does not itself pass into these changes. Causality is not creation out of nothing, but it is change brought about by an abiding agency.

The final argument which realists advance against ontological substance is a repetition of the contention that the concept of substance cannot express some of the truths peculiar to relations. This assertion serves not only as a criticism of substance, but also as a transition to the neo-realistic substitutes for substance. The theory of substance, it is held, neglects "other and familiar types of propositions such as, A is richer than B; A is cause of B . . . ."[1] To call these relations predicates of subjects "seems preposterous," since they clearly refer to two distinct entities.[2] This "relational view of the universe . . . stands in strong opposition to the substance . . . view."[3] All exact thinking is dependent on this view of relation.[4]

In reply to this criticism it may be observed once more that the emphasis on relations does not make necessary the abandonment of substance. Even if relations are held to enjoy a separate and independent ontological character, some of the terms which they relate may be substances.[5] On the other hand, the fact that relational propositions can be,

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[1]Marvin, FBM, 173.

[2]Loc. cit.

[3]Spaulding, NR, 42-43.

[4]Perry, Art. IV, 107.

[5]Lenzen, Art. I, 152.

and perhaps must be, finally put into subject-predicate form,[1] leaves reason to believe that substances with attributes actually exist. Whether reality is at bottom one substance, the attributes of which make up the world of particular things, is a further question not to be finally settled here. The factor of unity noted above,[2] which must be basic to plurality, indicates that this may be the case. If there are many substances they are to some extent dependent on the one ultimate substance. At any rate the universe is not merely a congeries of relations.

Neo-realists have properly shown through their critique of substance as a concept in ontology certain essentials. It is plain that any ultimate principle or substance must be definite, open to analysis, and capable of accounting for the diversity of concrete objects. There can be no fixed and all enveloping universal substance which robs finite beings of every degree of independence. Nor can ontological substance be the home of vague and mysterious powers or lawless causes. Finally, the substances or substance of the universe, if there be such, must admit of a relational interpretation.

Yet these realistic criticisms do not make it necessary to reject substance entirely as an ontological or metaphysi-

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[1]Prall, Art. I, 42, 45, 49, 50, 55.

[2]Cf. pp. 257-260.

cal category. There remain good grounds for believing that substance is an underlying principle of definite and distinguishable character. Its universality provides the generality in which particulars root. The unity of reality rests with a substance which makes its plurality intelligible. Substance accounts for the activity and change as well as the self-dependence and permanence in reality. It is the ground of relations.

The next question is whether neo-realists supply an acceptable alternative to the theory of substance.

C. BEING AND SUBSISTENCE[1]

Instead of holding that there is a single ultimate substance or plurality of substances in terms of which the universe is to be explained, neo-realists advocate a realm of subsistence. The ultimate components of the universe are terms and relations,[2] and these are subsistents. What is meant by this concept must be inquired.

Since the term subsistence appears to be synonymous with

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[1]In this section the realm of subsistence is treated so far as possible in abstraction from that of existence. The relation between these two realms is considered below (cf. pp. 278-289).

[2]Holt, COC, 26.

being,[1] it is a universal and all-inclusive class which embraces everything.[2] "What . . . realism insists on is that every content, whether term or proposition, real or unreal, subsists of its own right in the all-inclusive universe of being."[3] This basic realm is the summum genus which includes "any possible object of thought, whether universal or particular, . . . existent or non-existent."[4]

The most fundamental elements in this realm of subsistence are logical and mathematical. "Logical principles are logically prior to all else. . . , such logical principles, namely, as include the principles of pure mathematics."[5] At this level of being are to be found those entities which students of "order" are discovering.[6] Number, a series of terms or symbols representing an objective order in which the asym-

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[1]Yet this is scarcely a satisfactory statement, since some "beings" exist, and others only subsist. To say that some subsistents are existents tends to break down the distinction between subsistence and existence. The truth is that these terms do not have an unequivocal meaning for neo-realists. That this is the case will appear when the relation of subsistence to existence is examined.

[2]Montague, WK, 322.

[3]Holt, Art. I, 366, 372, 358, 359, COC, 21, 22.

[4]Montague, ibid., 322, Art. IV, 253, Marvin, FBM, 107. Cf. Spaulding, Art. V, 163, NR, 432, WAI, 154.

[5]Spaulding, NR, 205, 494, Marvin, ibid., 142, 143, 120-121. Cf. Perry, PPT, 311.

[6]Holt, COC, 155.

metrical and transitive relations "greater than" and "less than" are found, is presupposed by all other types of beings.[1] Such entities are neither physical nor mental,[2] spatial nor temporal.[3] Consequently the sciences of logic and mathematics may be considered "non-existential."[4] The realm of subsistence "comprises all purely mathematical and logical entities. . . ."[5]

Subsistents are related in propositions.[6] It is the task of the logician and mathematician to make plain these relations.[7] Though the latter are indefinable[8] the cases where they may be clearly discerned are almost innumerable.[9] They include such entities as "similarity" and "difference," "equal to," "greater than," "less than," "before," "after," "like,"

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[1]Spaulding, Art. V, 175, Holt, COC, 106.

[2]Holt, et al., NR, 41, 472(1), Montague, Art. IV, 261, Perry, Art. IV, 129, PCI, 371-372.

[3]Marvin, Art. II, 57, 59, Spaulding, Art. V, 175.

[4]Marvin, FBM, 224, 229, 230, Spaulding, ibid., 174.

[5]Spaulding, WAI, 154.

[6]Ibid., 154, 142, 141, Holt, COC, 106.

[7]Marvin, FBM, 221, 229-230, Holt, ibid., 155.

[8]Perry, Art. IV, 106, Spaulding, Art. V, 175.

[9]Spaulding, WAI, 141.

"unlike," and similar notions.[1] While relations hold between things, processes, and qualities, they may also have other relations for their terms.[2] An independent ontological status is intrinsic to them.[3] Laws of being are assertions of relations or propositions that hold between variables,[4] and as such they are implications present in objective facts.[5] The presence of relations between subsistents does not mean their interdependence.[6]

Subsistents form a hierarchy of progressive complexity and value.[7] In this "simple-to-complex series" the secondary qualities, such as colors, sounds, and odors, come after the entities of logic and mathematics,[8] at least according to Holt. Next arises extension, time, motion, and mass. Small masses arranged in geometrical forms constitute the subject-matter of chemistry. Larger masses are the province of en-

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[1]Spaulding, WAI, 141, NR, 100, 101, 103, Perry, Art. IV, 107.

[2]Spaulding, WAI, 142.

[3]Marvin, FBM, 175-176, 109, Spaulding, NR, 100, 443.

[4]Montague, Art. IV, 255.

[5]Marvin, ibid., 111, 108-109, 114.

[6]Perry, ibid., 118, Spaulding, Art. V, 236.

[7]Holt, COC, 155, Spaulding, loc. cit.

[8]Holt, loc. cit.

gineering, geology, and astronomy. Organic life, the subject matter of botany, biology, and physiology occupies a still higher level in the series. Consciousness, which is treated by the Geisteswissenschaften, appears on the next stratum.[1]

Value for some neo-realists stands at the top of the series of subsistents as their most complex and important illustration.[2] "A value is a still neutral property that is added to some and not to others of those entities that lie in the simpler regions of the ontological series."[3] Or perhaps values are to be considered "relations" between individual things.[4] They are sui generis and thus are not to be defined in terms of anything else,[5] nor to be given an exclusively subjective definition.[6] Ideals, the means of achieving val-

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[1]For this ordering of subsistents and the sciences that deal with them see Holt, COC, 155-159, Spaulding, Art. V, 205, 221, NR, 494, WAI, 137-140, Perry, PPT, 311, Marvin, FBM, 143-144, 120-121.

[2]Holt, ibid., 160.

[3]Ibid., 159.

[4]Spaulding, WAI, 143-144.

[5]Ibid., 146, 247.

[6]Spaulding, NR, 500, 206, 207, 208. Perry, however, denies to values a genuinely objective character. He "repudiates every spiritual and moral ontology" (PPT, 344), and defines value in terms of "desire" or "interest" (ibid., 335). While values have a certain logical generality they have no objective metaphysical status (ibid., 335, 340, 87).

ue, are found in this realm. Perfect truth, justice, and beauty subsist though they may never exist.[1] Here is the province of such normative sciences as aesthetics, logic (so far as it deals with material truth), ethics, and even of theology.[2]

It will be observed that all of these subsistent entities seem to have a definite, intrinsic, and self-dependent character. This is just what neo-realists intend. Each subsistent has "a meaning, character, or essence that is objective" and "independent of whether or not it is actually experienced" or whether it "actually exists."[3] It has a "full ontological status."[4] Subsistent entities "retain their distinct self-identity whatsoever their context."[5] ". . . A certain serial order is often permanently intrinsic to them."[6] Since the simple subsistents are mutually independent and independent of the complexes of which they are members,[7] they must be self-dependent. Certainly the more com-

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[1]Spaulding, NR, 11, xviii, vi, 517, WAI, 154.

[2]Holt, COC, 159-160, Spaulding, NR, 517.

[3]Montague, WK, 329.

[4]Holt, et al., NR, 35.

[5]Holt, COC, 104, 105, Perry, PPT, 316.

[6]Holt, ibid., 107, 106.

[7]Perry, Art. IV, 118, 119.

plex subsistents are "self-existent" or self-dependent. That primary and secondary qualities are of this nature has already been observed.[1] Such ideals as the good and beautiful are "efficient causes, forces, or powers" which "actuate" finite beings.[2] Thus "subsistent entities . . . make a difference to the other entities of the universe. . . ."[3]

Further evidence that neo-realists assign a self-dependent character to subsistents rests in the fact that the model for them is consciously derived from Plato.[4] However, the neo-realistic interpretation for this realm of subsistence varies from that of Plato. It is probably true, as Perry says, that "most modern realists . . . would accept . . . only the mathematical and logical part of Platonic realism."[5] Montague believes that even in these respects the neo-realistic view of subsistents differs from the Platonic conception.

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[1] Cf. supra, pp. 157-159.

[2] Spaulding, WAI, 247, 249, NR, 516-517, 514, 450-451.

[3] Spaulding, NR, 516. Cf. Pitkin, Art. III, 415.

[4] Montague says that "the world of subsistence was . . . discovered by Plato. . ." (WK, 354). Spaulding believes that Plato was at least "sympathetic to the doctrine of subsistents," and in support of this claim he refers to the Republic, V, VI, VII, Theaetetus, Parmenides, Phaedo, and Cratylus (NR, 493n). Each of the six neo-realists is willing to call himself "a Platonic realist" (Holt, et al., NR, 35).

[5] PCI, 371. Cf. Pitkin's interpretation of Plato (Art. VI).

First, subsistents are not separate from the world of existents,[1] as Plato had held,[2] and second, the realm of subsistence is not restricted in its contents to ethical and logical essences. It includes in addition all that is conceivable, the logically specific as well as the logically generic, the ethically base as well as the ethically good.[3] Spaulding accepts the Platonic belief in the objectivity of ideals and values,[4] and Perry rejects it.[5] But whatever interpretation neo-realists give to Plato the motive of the latter in providing a realm of self-dependent and abiding beings which are more or less indifferent to change,[6] has been retained. Subsistents are fundamentally self-contained and permanent.

Whether subsistents, assuming that there are such apart from existence, are anything more than substances under a new name now appears exceedingly dubious. As already observed,[7]

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[1]Cf. infra, pp. 278-289.

[2]Cf. Rep., IX, 592. Other passages in Plato tend to obliterate this distinction (cf. supra, 31-32).

[3]Montague, WK, 354.

[4]NR, 498, vi.

[5]PPT, 344.

[6]Ideals and values "do not change but remain eternal," according to Spaulding (NR, 508, 498, cf. 501). Numbers and relations are of this same character (ibid., 512).

[7]Cf. pp. 58-59.

the fundamental or primary meaning which substance has borne in the history of thought has been that of a self-contained or self-dependent and enduring reality that does not dissolve in change.[1] Subsistents do not "subsist on" anything else. They are clearly self-subsistent or self-dependent for the realists. Consequently they certainly appear to be "our old friends the substances masquerading" under the title of neutral entities.[2] Some neo-realists even call subsistents "neutral substance[s]"[3] in order to distinguish them from so-called material and spiritual substances. They are as self-dependent as either material or spiritual substances ever were.

There is good ground, one may conclude, for considering the realm of subsistence a realm of substances. But the assumption of such a realm that appears to be separate from the world of existence raises several crucial problems. In the first place, it is not clear how abstract terms and imaginary objects can be thus self-subsistent.[4] What the relations of

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[1]Leighton (MAC, 189) and Loewenberg (Art. II, 13) agree that this has been the primary meaning of substance.

[2]Leighton, loc. cit. Cf. Haldane, ROR, 263, Evans, NROR, 104.

[3]Perry, PCI, 372, Holt, Art. I, 372, COC, 102, 52, 75-76, 132, 124, 126, 163.

[4]Hoernlé, Art. I, 263.

universal to particular, of abstract to concrete, of subsistent to existent, of unreal to real, may be, are questions still to be answered. The construction of such an extra province of substances seems, at first thought, to be a superfluity.[1] One may, therefore, challenge the neo-realist to make some disposition of these problems.

Logically, the first question to be answered is what the relation of subsistence to existence may be.

D. SUBSISTENCE AND EXISTENCE

Since "full ontological status" is ascribed both to existents and to subsistents[2] the problem of their distinction is no easy one. Nevertheless neo-realists assume that such a division is valid. Subsistence is considered "logically prior to the existent as the genus is prior to the species. . . ."[3] The realm of subsistence is "even more varied and extensive than the realm of existential entities."[4] There is profit in studying the former for one may justly hope to gain through that means further knowledge of

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[1] It is certainly a departure from the common sense espoused by neo-realists (Lovejoy, RAD, 56).

[2] Holt, et al., NR, 35.

[3] Montague, WK, 354, 355, Spaulding, Art. V, 180.

[4] Spaulding, NR, 11, Marvin, FBM, 107.

the existent world.[1]

If subsistence were coextensive with being, as the discussion in the last section seemed to indicate, it would be the realm proper to objects of pure thought or conception, and existence would include objects of actual or possible sense-perception. This division would be unjustifiable on two counts, however. It would require a negative definition of subsistence,[2] since it could only be defined as the realm of objects not perceptible to the senses, and it would overlook the fact that the universals of perceptual experience are actually found in and derived from particulars of sense.[3] Perhaps some light on the relation between these two realms can be found in the neo-realistic conception of existence.

Commonly, existence is taken by realists to be synonymous with "reality" since this definition accords with "the universal and persistent usage of common sense. . . ."[4] Reality is in turn considered the province which includes

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[1]Marvin, FBM, 114.

[2]This would allow an infinite number of possibilities as to what subsistence really is (cf. Creighton and Smart, AIL, 87-88).

[3]Hoernlé, Art. I, 262-263.

[4]Montague, WK, 295n, 294, Art. IV, 255, Holt, Art. I, 366.

true propositions, and excludes contradiction.[1] From this point of view existence would mean the real and true, subsistence the unreal and untrue. Yet this definition of existence as distinct from subsistence is vitiated by the realistic inclination to use the terms "reality" and "real" when referring both to existence and subsistence,[2] or even to subsistence alone.[3] Furthermore, "the realm of truth" is not confined to the existent, it is made synonymous with subsistence hence inclusive of existence, according to Marvin.[4]

A second definition or requirement of existence suggested by neo-realists is that it must refer to that which is individual and particular.[5] "Individuation . . . is necessary to existence," says Montague.[6] Any existent must have "that full quota of characteristics, or be that full quota, which the sciences . . . find it empirically to have."[7] The

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[1]Holt, Art. I, 366, COC, 339, Montague, WK, 399, Art. IV, 252.

[2]Spaulding, NR, 513, 442, 520, Perry, PPT, 311, PCI, 372, Marvin, FBM, 116, Art. II, 45n, Montague, Art. IV, 255.

[3]Spaulding, ibid., 498, Holt, COC, 339.

[4]FBM, 107.

[5]Spaulding, ibid., 516, Marvin, FBM, 122-123, 148, 149.

[6]WK, 355.

[7]Spaulding, ibid., 491.

presumption is that subsistence is the province of universals[1] from which particulars are distinct.[2] That subsistents are universals has already been shown.[3]

Here, once more, the distinction between existence and subsistence is not satisfactory. If universals are actually present in the individual and the particular the realm of subsistence becomes a superfluous assumption. On the other hand, if they are distinct from particulars the problem of individuation becomes insoluble.[4] For either it would have to be assumed that universals as such enter into association with each other to form particulars, in which case there would be as many universals as particulars,[5] or, new relations between separate universals must be assumed in order to account for the rise of particulars. But in the latter case the origin and status of these new relations would present a further mystery.

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[1]Spaulding, NR, 488. Marvin holds that "some universals exist" (FBM, 110, 114), though it may be questioned whether he means anything more than that they "subsist" independent of the knower.

[2]Ray concludes that "the relation between subsistence and existence turns out to be the relation between universal and particular. . ." (CNR, 8).

[3]Cf. also Spaulding, Art. V, 233, 236. (Note that on p. 236 Spaulding also calls individuals subsistents.)

[4]Sheldon, SSPD, 234, 236.

[5]Cf. supra, pp. 261-263.

Existence means, thirdly, that which can be located in space and time, or in time alone.[1] In addition to "complete logical individuation" every existent must "possess for its final differentia a definite position in the continua of space and time."[2] To exist is to have this position or to be implied as a condition of it.[3] This conception of existence makes it necessary to suppose that subsistence includes what cannot be located in space and time.[4]

Now if location in space and time be taken as the differentia of existence from subsistence, the status of space and time thereby becomes ambiguous. Either space and time themselves exist or they do not. If they do exist, they must be said to exist in space and time and this is meaningless. If, on the contrary, they do not exist they must subsist.[5] But this would mean that existence is defined by subsistence[6] and the distinction between the two lapses. There seems to

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[1]Spaulding, NR, 490.

[2]Montague, WK, 355-356, Spaulding, ibid., 11.

[3]Montague, ibid., 294-295, Art. IV, 255, Marvin, FBM, 40, 112.

[4]Montague, WK, 297, Art. IV, 255, Spaulding, ibid., 490.

[5]Spaulding seems to argue that time "subsists" (Art. V, 223).

[6]Hoernlé, Art. I, 262.

be no way out of this dilemma so long as the distinction between subsistence and existence is retained.[1]

There is some evidence for concluding that subsistence is the realm of all possibilities,[2] some of which become actualities or existents. Those which are not actual or existent but remain merely objects that can be referred to in thought though not located in space and time, are subsistents. Such objects include round squares, perpetual motion machines, the satyrs of the Greeks, the phlogiston of the eighteenth century, and kindred illogical and fantastic notions.[3] Subsistence embraces the irrational, illusory, and contradictory.[4] Consequently "all existents subsist, but not all subsistents exist."[5] The world of subsistence contains the world of existence "as the ocean contains its waves."[6]

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[1]A. W. Moore points out the further difficulty of explaining the changes which a subsistent undergoes in becoming an existent, i. e. in becoming located in space and time. How, for example, does a universal "hotness" which is not hot become so when located in space and time? (Art. I, 282.)

[2]Montague, WK, 354, Marvin, FBM, 107.

[3]Spaulding, NR, 492, Holt, Art. I, 364, COC, 259, Marvin, loc. cit., Montague, Art. IV, 255.

[4]Montague, loc. cit.

[5]Spaulding, ibid., 490, cf. 499, 508, 517, 516.

[6]Montague, WK, 354. This inclusion of existence by subsistence must be ontological and not merely logical (A. W. Moore, Art. I, 281). Spaulding observes that subsistents cannot be "psychological in character" since consciousness is no substance or "container" (NR, 492).

Nor can this distinction between existence and subsistence be accepted. Aside from the fact that subsistence would be negatively defined, since it is considered that realm of all possible beings[1] which cannot be located in space and time, the status of possibility itself would become unclear.[2] Possibility and actuality seem both to be present in existence. An actual egg is a possible chicken. A possible chicken makes the actual fox's mouth water. Actuality and possibility are intimately related in the existent world. Even the fantastic possibilities that can never become actualities always stand in relation to an actual and existent mind, else the supposition of their "subsistence" could not occur. Neo-realists do not make plain this relation. To consider existence the realm of actualities that is derived from the realm of subsistent possibilities is to overlook the fact that many existents are also possibilities. Such a view of possibility, furthermore, offers no explanation of how subsistent possibilities become existent actualities.[3]

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[1]To consider in ontology everything that can possibly be put into a proposition, true or false, makes ontology an endless discipline in which an infinite number of speculative absurdities must be examined, instead of a study of the universe as it is. (Cf. Evans, NROR, 101, Hocking, TOP, 342-346, 366-367, Calkins, Art. I, 454.)

[2]A. W. Moore, Art. I, 282.

[3]Loc. cit.

Moreover, neo-realists do not consistently hold to the view that errors and illusions reside in the realm of subsistence.[1] Montague asserts that they are perceptions of "non-existent objects,"[2] i. e. subsistents. Yet these non-existent objects are "determinate functions of the real or existent objects."[3] The illusion of the converging railroad tracks can be explained in terms of "purely physical (optical) laws,"[4] i. e. in terms of laws that apply to existents. There is "a plurality of causes"[5] for a given conscious state and error occurs through the distortion of these causes in the environment or in the cerebral area of the nervous system.[6] "Distortion" is caused by existents. Error must therefore find its locus among existents. Again, if the

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[1]Perry and Marvin appear to deny altogether that errors and illusions are subsistents, for they give to them a definitely subjective reference. Perry believes that errors arise from "the practical discrepancy . . . between subjective manifolds and the manifolds of some independent order" (PPT, 325). An error is the failure of a belief to result in proper adjustment to one's environment (ibid., 326, 327, 328). For Marvin the task of knowledge is "interpretation" (ISP, 356), and hence error is an incorrect interpretation of fact (ibid., 350, 356, 357, 360-361, FBM, 104, 105).

[2]WK, 341, 342, 328, Art. IV, 255, 270n.

[3]WK, 328, 329.

[4]Ibid., 243.

[5]Art. IV, 298.

[6]Ibid., 291, 287, 288, WK, 244-245.

likelihood of error is reduced by the number of effects which the knower receives,[1] error must rest with the knower. He must have the capacity to compare and combine these effects else he could not realize the importance of their number. Error would be due to an incomplete assimilation of effects.

Spaulding also holds that errors and illusions are non-existents or subsistents.[2] Yet he says that they have a locus in time and space,[3] and arise from the fact that one entity is taken (by an existent knower) to be another that it is not.[4] What the distinction between a non-existent and an existent error would be, is not explained. This same difficulty runs through Holt's writings. Errors and illusions are features of the subsistent world.[5] But since "all errors are cases of contradiction"[6] they are "plentifully manifested in the objective physical world. . . ,"[7] i. e. in existence. For Pitkin error is constituted by non-spatio-temporal rela-

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[1]Montague, Art. IV, 298.

[2]NR, 377, 442.

[3]Ibid., 375, 442.

[4]Ibid., 429, 377, 378.

[5]COC, 269, 270, Art. I, 363, 370, 356.

[6]Art. I, 361.

[7]Ibid., 365, 364, 362, 354, COC, 275, 279, 271, 276.

tions in which objects that are in space and time may also stand.[1] Error rests in the cognitive field, which is a new or (4+a)th dimension, and it arises because two spatial objects may occupy at the same time the spatio-temporal and the spatio-temporal-cognitive spheres.[2] Illusions, hallucinations, and errors are "necessary features of a projected physical system."[3]

Subsistence does not appear to be the exclusive province of errors and illusions. The latter do not enjoy a separate subsistence waiting from all eternity to be perceived by an unfortunate existent knower.[4] On the other hand, they seem to be produced by existents themselves. Real and existent processes in space and time, such as those in the brain, the ether waves, or a qualitatively distinct and unique consciousness, produce unreal and non-existent subsistents. Once again the distinction between subsistence and existence becomes ambiguous.

One must at last conclude that there can be no clear and

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[1]Pitkin, Art. III, 466.

[2]Ibid., 465, 466, 461, 458-459.

[3]Ibid., 377, 458, 463.

[4]Even if neo-realists held consistently to this view they would be embarrassed by the fact that errors could not then be avoided or eradicated (Evans, NROR, 136, A. W. Moore, Art. I, 283).

unequivocal distinction between subsistence and existence.[1] If all existents really subsist the real and existent world is swallowed up in the subsistent. On the other side, subsistents, even errors and illusions, are present in, and perhaps created by, existents. The function of an independent realm of subsistence has not been made clear.[2] While the "neutrality" ascribed to subsistents emphasizes the fact that they may be used in interpreting both mind and matter, they have no status apart from these two realms.

Yet it still remains true that neo-realists have performed a valuable analysis in advocating the world of subsistence. By reducing the data of experience to their lowest terms, and by making articulate the vague notions that often pass for insights, this school has made a permanent contribution to philosophy. But to hypostatize concepts and to baptize them with the name of subsistents is to assume a realm of being the status of which cannot be made clear. The conceptual may have its own appropriate kind of reality, but what that reality is has not been explained by providing it with a new name.[3] There appear to be fewer difficulties in affirming that the conceptual world is resident in and cre-

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[1]Cf. Lovejoy, RAD, 58.

[2]Cf. Rogers, Art. I, 157, Pratt, Art. II, 89.

[3]Lewis, MWO, 71-72.

ated by existent beings.[1]

It will be remembered that subsistents appeared to be substances so long as they were thought of in abstraction from existents. If now subsistents are shown to be resident in existents what becomes of the theory of substances which neo-realists seemed to be presupposing? Are all existents substances? Certainly realists, with the exception of Montague, would be the first to deny that any existents are true substances. As already observed, they have denied substance to matter and to mind, the two branches of existence. That they were not successful in escaping all forms of substance has, however, been shown.

It remains to inquire how the forms of mind and matter arise. Since realists have failed to demonstrate that substance is absent from mind and matter as they are now given in existence, one may inquire whether they are able to construct a satisfactory theory of their origin and development in which no concept of substance is necessary. Whether the origin of the particular forms which mind and matter have assumed requires some theory of substance, may now be considered.

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[1]It seems an inescapable fact that the data of logic and science have a clear metaphysical and existential reference (cf. Meyerson, IAR, 384), in spite of arguments by positivists.

E. CAUSALITY AND EVOLUTION

However unsuccessful neo-realists may have been in distinguishing existence from subsistence, reality from unreality, universality from particularity, they have at least made clear that for them the basic elements of the universe are logical and mathematical entities. The theory of substantial agency in reality has been rejected.[1] If there is activity, growth, and evolution, they must arise from these logical ultimates.

The terms and relations which neo-realists consider the ultimate components of the universe,[2] generate the complexities of concrete experience through logical activity.[3] It is in the proposition that Holt finds the ground of activity.[4] Between one proposition and another there is also according to Marvin, "logical power" and this can be "only another name for implication. . . ."[5] Activity is "a manifold of terms in relation," a law of connection.[6] Thus "the laws

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[1]Cf. supra, pp. 263-264.

[2]Holt, COC, 26, 51, 135.

[3]Ibid., 164, 104, 161.

[4]Ibid., 29, 51, 104, 17-18, 98.

[5]FBM, 118, 116.

[6]Perry, PPT, 99-100.

of nature are . . . propositions, which are the active elements of . . . being."[1] Mathematical entities and relations are active in the sense that "they make a difference to the other entities of the universe."[2] Activity in reality is an asymmetrical series of logical implications.

This fundamental premise of science and philosophy that propositions imply one another, is what neo-realists mean by causation.[3] "The power of the cause must mean logical power."[4] "Causality and logical necessity are one."[5] Causality is a discrete series, succession, or law of implicative relations.[6] It may be considered "those other values which together with time determine the value of a future complex,"[7] though temporal antecedence is not always essential to causa-

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[1]Holt, COC, 303, Marvin, FBM, 120.

[2]Spaulding, NR, 516, Pitkin, Art. III, 415.

[3]Marvin, ibid., 116. For Montague causality is the universal fact of potentiality or implication. Each entity has "its inner, or mental, potentialities, and its outer . . . actuality, and each has its measure of self-affirming spontaneity or primary causality" (BU, 83, 82, Art. IV, 288).

[4]Marvin, ibid., 118.

[5]Holt, ibid., 132, Marvin, ibid., 118, 116, Perry, Art. IV, 110.

[6]Perry, PCI, 374, PPT, 100, Marvin, ibid., 117.

[7]Perry, Art. 110, cf. 111, 112, 124.

tion.[1] Explanation is the description of logical succession,[2] not the discovery of causal agents.

Apparently neo-realists argue that complexity, the existent world of mind and matter, arises through the logical series of relations which proceed from ultimate terms and relations. Holt asserts that ultimate entities develop in this fashion "without break or discontinuity into the more and more complex, even down to the infinite diversity of concrete being."[3] The series "develops unceasingly of its own motion . . . ."[4] For Spaulding "organizing relations" generate the new wholes.[5]

This theory of causality has already been criticized.[6] To consider causality, and thus activity, a matter of relations is merely to state the problem.[7] It is precisely the

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[1]Marvin, FBM, 119, 120, Holt, COC, 18. Yet Spaulding considers time "absolute and not relative," subsistent, whether anything exists in it or not (Art. V, 223, 224). This would seem to imply that time is relevant to every occurrence.

[2]Perry, PPT, 100, 99, Marvin, ibid., 36, 37, Holt, ibid., 285.

[3]COC, 164, 98.

[4]Ibid., 165.

[5]NR, 488, 500.

[6]Cf. pp. 264-266.

[7]Sheldon, SSPD, 237.

nature of the causal relation that is to be explained. The neo-realist merely says that when A causes B to become C, A, B, and C stand in a relation of succession. Furthermore, the change which causation presupposes, is not merely an affair of succession. Change presupposes an element of permanence which does not dissolve into the series of successive states. The change in A and B when B is caused by A to become C does not mean that A becomes B or C, but that B derives some factor from A. As already intimated, the identity of the elements in this series is preserved if a factor of organic wholeness or agency which is more than the sum of the elements, is postulated. This active whole is capable of assuming and terminating relations, and is thus the permanent element in succession. It guarantees permanence to A, B, and C, while negotiating their changes. In short, one must resort to agency in order for the succession of relations in causality to be explained.

The complexity of the existent world appears then, to indicate a causal agency which operates according to logical laws.[1] That the agency in activity and causality is of the nature of substance has already been indicated.

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[1]Lamprecht maintains that causality and contingency or novelty are to be reconciled through the assumption that causality is an agency operating upon definite materials (Art. II, 685).

But a more fundamental question than that of how the mere complexities of the existent world arise, is still to be answered. The real problem is to explain the qualitative novelty and distinctness that attaches to these existent complexes. On the face of it there seems no possibility of interpreting novelty and qualitative development from the realistic premises so far presented. If the ultimate entities of the universe are simple terms related in propositions there is no justification for deducing qualitative diversities from them. In logic there can be no more in the conclusion than there is in the premises.[1] Certainly no adequate "premises" for the purely logical deduction of the existent world have been provided by neo-realists. There is mathematical continuity in reality but there is also novelty.[2]

Holt and Perry, through their argument that wholes are reducible without residue to their parts,[3] deny that there

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[1]Knudson, POP, 208.

[2]Hartshorne argues that qualitative novelty occurs through "the dimension of degree of definiteness or specificity" which reality approaches as an ideal limit (PPS, 207-208).

[3]Perry, PCI, 374, PPT, 319, Holt, Art. I, 340, 368, COC, 164.

can be any genuine novelties[1] in the existent world. What appear to be such are merely new organizations of old elements, but not cases of new qualities.[2] The case for unique properties of organic wholes, which has already been presented,[3] constitutes a criticism of this view. That organisms such as electrons, atoms, chairs, men, act as wholes in ways distinct from those of their parts has already been shown. Such values as moral integrity and the appreciation of Wagner's Parsifal certainly cannot be reduced without residue to logical and mathematical entities, the ultimate elements of being. Qualitative diversity is too patent a fact to be so easily passed by.

Marvin recognizes the need for a theory of novelty. Particular things and events are not only results of universal causes, but are also constituted by particular causes.[4] Continuity between types of existence cannot be established,

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[1]Consistency would demand that Perry deny all novelty. Yet he does say it is "correct" to assert "that there is a real contingency and novelty in the world" (PPT, 252). He also observes that the world manifests "not a gain here or a gain there, but a gain on the whole" (ME, 126). But his conclusion that the hope of progress must be "limited" (PPT, 246) minimizes the probability of genuine evolution in value.

[2]Holt, COC, 163, 107, Art. I, 368.

[3]Cf. pp. 108-111.

[4]FBM, 120, 123, 148-149, 130, 122.

though increased knowledge will doubtless reveal more of it than is now evident.[1] "New things, new events, and perhaps even new elementary constituents of these things and events, are potentially in the present."[2] This fact of newness and the impossibility of knowing the future fully may be called "creative evolution."[3] "The existent actually grows or buds. . . . Evolution is an ultimate trait of existence."[4]

For Spaulding there is genuine novelty in the scheme of things, indicating a break with the past.[5] Properties of new wholes which are irreducible to their parts, arise through "creative synthesis."[6] The principle of creativity rests in "organizing relations" which generate the new qualities of these wholes.[7] Between any two levels in the evolutionary series there is no contradiction but a correlation.[8] While

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[1]Marvin, FBM, 140, 142, 143-144.

[2]Ibid., 135.

[3]Ibid., 135, 130.

[4]Ibid., 134.

[5]WAI, 62, NR, 514. Spaulding's purpose in his last book, A World of Chance, is to emphasize especially the factor of contingency in reality and thus the probability that novelty will arise (cf. pp. v, vii, xviii, xix).

[6]Art. V, 240, NR, 500, 512.

[7]NR, 500, 488, 512.

[8]Ibid., 449, 450.

the "universe" is the mere totality of entities related additively, the "cosmos" is the realm of non-additive wholes, and it is these which embody novelty.[1] Value is created and to some extent preserved in the evolutionary process.[2]

Montague holds that "evolution is wrought" by "the finite God."[3] In the evolutionary ascent from the lower to the higher "the constituent forms" of cosmic energy become qualitatively more and more unique.[4] The present result of evolution is that there are four levels of organization, namely, the mechanical or inorganic, the vital or vegetative, the animal or sensory, and the personal and rational.[5] From chaos the universe is undergoing a gradual amelioration so that there is a progressive increase in value.[6]

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[1]Spaulding, NR, 488.

[2]Ibid., 517, 508, 514. Spaulding's theory that ideals and values are "efficient" and thus capable of bringing about the realization of value in man, seems inconsistent with the theory of "creative synthesis." The former presupposes a potentiality in reality which is becoming gradually more actual, whereas the latter implies that novelties arise without this antecedent potentiality. (Evans, NROR, 189). Probably this difficulty arises from Spaulding's reliance upon a metaphysical theory of causality without realizing it (cf. Brightman, Art. II, 52-53).

[3]BU, 84.

[4]CSD, 90.

[5]Ibid., 74.

[6]BU, 84, 66, 85.

If neo-realists deny novelty and qualitative development they are liable to two criticisms. First, they fail to provide an adequate theory of individuality, for the particular and individual is the unique. The individual is more than a complex of universals, it is something in and for itself which is explicable in no other terms. Secondly, the scientific facts of evolution strongly suggest that new individuals have appeared in the course of history. While they may resemble their predecessors they cannot be reduced to them without residue. Substance, which is presupposed by the theory of individuality, is, therefore, not satisfactorily accounted for. The appearance of new substances in the course of evolution seems probable.

On the other hand, if novelty is recognized by neo-realists the presence of substance must also be recognized. Whether it be held that the novelties in evolution are new manifestations or new forms of the one underlying reality, new actualities of the potentiality basic in reality,[1] or whether they be construed as the birth of new individualities

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[1]So far as neo-realists believe in teleology such a potentiality would seem to be presupposed. Montague (BU, 73-74, 85, Art. IV, 284) and Spaulding (NR, 515, 516, 521, 509, WAI, 257) clearly indicate belief in it. Holt admits purpose but considers it only the fact of law in nature (COC, 295, 294, 303, 36). Marvin is skeptical about its presence (FBM, 164-165, 252), and Pitkin confesses agnosticism about the answer to this question (Art. I, 214).

from old universalities, they presuppose a theory of substance. What is unique, individual, relatively self-contained and constant through time must be a substance. Evolution is either a process in which the one substance assumes new forms, or else a development in which new substances are generated.

The realistic view of evolution either presupposes substance or fails to account for its salient functions.

F. CONCLUSIONS

From this critique of substance as a basic concept in ontology the following conclusions appear to be justifiable. First, the attempt by neo-realists to reduce reality to ultimate simples does not make necessary the rejection of substance, since completely simple elements would be indistinguishable from bare being and evolution from them would be miraculous. Second, the failure by all neo-realists consistently to maintain the doctrine of simplicity permits the conclusion that complexes are even for them ultimate, and hence that substances, which are complexes, may be ultimate. Third, the rejection of substance because it represents a speculative dogma is unnecessary, for a speculative ideal is presupposed in the denial as well as in the assumption of substance. Fourth, neo-realists have shown that a fixed and all envelop-

ing universal substance which robs finite beings of every degree of independence cannot be a tenable notion. Fifth, the view that ontological substance is the home of vague and mysterious powers or lawless causes is justly shown to have no validity. Sixth, neo-realists do not demonstrate that substance must be given up when interpreted as a determinate underlying principle which provides the unity, generality, permanence, and activity in reality. Seventh, it remains true that relations, particularity, plurality, and change find their ultimate ground in a universal substance in spite of the realistic critique. Eighth, the endowment of subsistents by neo-realists with such properties as self-dependence, permanence, and universality makes subsistents themselves appear to be substances, when they are considered apart from existents. Ninth, the failure of neo-realists to establish an unequivocal distinction between subsistence and existence deprives the theory of subsistent "substances" of importance and validity. Tenth, the origin of new forms of existence, recognized by Spaulding, Marvin, and Montague, but denied by Perry and Holt, requires a theory of substance for novelty is either the generation of new and individual substances or the appearance of new manifestations of a single ultimate substance.

CHAPTER VIII

CONCLUSIONS AND SUMMARY

Though conclusions have been stated at the end of each chapter in this investigation, they need finally to be presented in relation to each other. The significance of the neo-realistic critique may then be viewed as a whole. Since the neo-realistic denial of substance has been shown to be quite general but the criticisms more implicit than explicit no attempt will be made to separate conclusions about these two types of criticism.

A. CONCLUSIONS

1. The argument by neo-realists that the method of analysis requires one to abandon the concept of substance need not be accepted as conclusive, for this method results in undue abstractness and either ignores or leaves unexplained the properties which are unique with organic wholes. Hence it cannot be made the final and ultimate means of philosophic investigation.

2. Since all relational propositions can be, and perhaps must be, finally translated into the subject-predicate or substance-attribute formula, the relational logic espoused by neo-realists does not make necessary the rejection of the concept of substance, though it suggests an alternative to the latter which is in many instances useful.

3. Failure by neo-realists finally to demonstrate the view (not accepted by Montague) that all relations must be external, permits the hypothesis that some relations are internal and that the concept of substance provides the ground or synthesis of these relations. The probability that there are also some external relations makes the existence of a single absolute substance dubious.

4. Neo-realists justly conclude that recent developments in physics and chemistry make it necessary to reject the notion that the physical world is one fixed block of material substance, an aggregate of solid, indestructible, and substantial atoms, or an inert and inconceivable substance which supports qualities and relations though itself distinct from them.

5. The attempt made by neo-realists to transfer the functions once performed by material substance to qualities and relations alone, fails through its inability to provide satisfactorily for identity and individuality in concrete physical things, or for their permanence in change.

6. Despite the neo-realistic critique, there is adequate ground for maintaining that a material substance is that unique, organic, and relatively self-contained unity of properties and relations within the space-time world which is active in and through those properties and relations according to a definite law, plan, or purpose.

7. As neo-realists contend, spiritual substance, defined as a transcendent, non-empirical, unanalyzable, and unknowable soul, or as a soul which is the possessor of data that have no objective reference, must be rejected.

8. The behavioristic and materialistic trend of neo-realism, in spite of the opposition by most neo-realists toward naturalism, makes impossible an adequate explanation for memory, prediction, and uniqueness or self-identity in conscious experience, but substance, considered the presence in the stream of conscious experience of such factors as organic unity, relative privacy, activity, self-identity, and self-transcendence, would afford an escape from these difficulties.

9. Montague argues directly for a theory of substance in consciousness, while Spaulding, Pitkin, Marvin, and

Perry ascribe such attributes of uniqueness to consciousness through its definition as a new dimension or as a complex relation that the rudiments of a concept of substance are virtually restated. Holt remains loyal to materialism, thus encountering the difficulties that arise when the uniqueness of consciousness is denied.

10. The neo-realistic plan to reduce all substances to ultimate and complete simples or neutral entities is unsuccessful, for it results in a concept of bare and vacuous being from which definiteness, complexity, and novelty could not arise, or in a plurality of entities with such attributes as virtually to make substances of them, or else in a realm of being in which universality and particularity, possibility and actuality, subsistence and existence, the conceptual and perceptual, the real and unreal, are assigned no unequivocal meaning.

11. A fixed and all-enveloping or universal substance which robs finite beings of every degree of independence, or a universal and absolute substance which is the home of vague and lawless powers or causes, must be denied as neo-realists assert; but the concept of a determinate, underlying principle or substance which provides unity, generality, and permanence, in spite of the plurality, particularity, and creative process in reality, remains a tenable doctrine.

B. SUMMARY

It has been the purpose of this inquiry to examine the implicit and explicit criticisms of the concept of substance by "the six" American neo-realists, namely, Perry, Montague, Holt, Marvin, Pitkin, and Spaulding. The importance of evaluating these criticisms has arisen from widespread disagreement about the validity of the concept of substance. Others besides neo-realists have looked upon the notion with

suspicion though two important schools in American philosophy, viz. critical realism and idealism, have retained it.

The neo-realistic criticism is the more remarkable because traditional realism was associated with the doctrine of substance and because the notion has held such an important place in the history of philosophy. From the time of Thales until the present the concept of substance or its equivalent term has stood, with varying emphasis, for a self-dependent reality which persists in spite of its changing accidents, relations, or qualities.

As an object of definition the history of the term substance begins with Aristotle. For him it designated the material substratum, the form or nature of an object, and the union of form and matter in particular individual things. The scholastic controversies over the status of universals, the relation of mind and body, and over the principle of individuation, were elaborations of the Aristotelian view of substance. In modern times continental rationalists defined substance primarily as that which is self-existent, while British empiricists considered it a useful, and Kant a necessary, category for the ordering of experience. It has been interpreted as the active and the passive, known and unknown, conscious and unconscious, ground of changing phenomena.

Recent developments in science have focused attention

once more upon the doctrine of substance and have tended to show the need for revising it. With the downfall of classical physics the notion that matter was a stuff-like substratum manifested in such attributes as mass, extension, motion, and impenetrability, was given up. The nature of substance has in fact become less and less a problem for the physicist since mathematical formulae have been substituted for it. Furthermore, the discovery that all measurements are relative to the measurer's frame of reference has made it impossible to establish the fixity of a material substratum. Development of the atomic theory and the conclusion that within the atom there is a vast amount of empty space, undermined still more the belief in solid material substance. Electrons or fields of force have come to be regarded as the basic units of matter. Whether these achievements by physicists have made necessary the rejection of substance in every sense has not been finally settled.

The theory of evolution has raised the question of whether species are all related to one genus as forms of the one substance or whether they may be considered Real Kinds or eternal substances themselves. Their origin may be the creation of new substances or new manifestations of an old one. In recent psychology there has been a strong tendency to explain consciousness by reducing it to its parts. "Struc-

turalists" have considered it a compound of mental states and not a substance. Gestalt, functional, and dynamic psychologists have emphasized factors in consciousness which may, however, be consistent with a kind of substance. The interpretation by neo-realists of these developments in science constitutes a partial basis for their critique of substance.

Neo-realists find the concept of substance to be incompatible with the method of analysis. Through this method they explain complexes by reducing them to ultimate simples, and organic as well as additive wholes by their reduction to constituent parts. Though every trained thinker employs the method of analysis the abstractness in explanations resulting from its use requires that it be supplemented. It is also incapable of explaining the unique properties of organic wholes. The presence of such wholes in wide areas of reality and the importance attaching to them indicate the seriousness of this weakness. Organic logic need not lead to the skepticism which neo-realists allege. Aristotelian logic, with its emphasis on the substance-attribute formula, may still be considered an alternative to the relational method. The mathematical or symbolic logic employed by neo-realists does not commit them to any particular type of metaphysics, and hence not to one in which the concept of sub-

stance plays no part. Since the identity of terms is not sacrificed through their internal relations, belief in such relations is justifiable. There are, however, some external relations. Substance has been associated with the doctrine of internal relations.

Accepting the findings of recent science neo-realists consider matter reducible to atoms and electrons. These in turn are reduced by them to neutral qualities and relations, and no substance which underlies or transcends these qualities and relations is believed to exist. Material substance is condemned because it represents an indefinite potentiality, signifies the exclusive ownership of qualities, and lies beyond experience. Consequently its traditional functions, namely, potentiality, identity or individuality, permanence, and activity are assigned by neo-realists to qualities and relations. Realists provide a theory of individuality but do not explain sufficiently how loose aggregates of qualities and relations function in unified and particular wholes. It is not clear on realistic premises how one material object may be distinguished from another, or how the unity and connection of the states of an object during change are to be construed. A theory of material substance would clarify these issues.

Though neo-realists differ in their own conceptions of

mind, all, save Montague, unite in denying that there is a permanent, self-existent, soul, subject, or substratum which supports or joins together the processes of consciousness. Valid grounds for retaining the introspective method exist, hence the possibility remains that the consciousness discovered through the use of this method may be a substance. Neo-realists criticize the theory of spiritual substance because it illustrates the fallacies of pseudo-simplicity and exclusive particularity, and because it over-emphasizes the privacy, organic wholeness, and activity of consciousness. This critique calls attention to the superfluity of assuming a transcendent, unknown, and unknowable substantial soul. However the de facto unity in conscious experience itself which accounts for the elements of privacy, activity, organization and self-identity must not be ignored. Montague argues directly for a concept of spiritual substance which expresses the self-transcendent reference of present brain-states to the past and future and to distant objects in space. Other neo-realists attempt to assimilate consciousness to the physical world but ascribe such attributes to it when they define it either as a complex relation or a new dimension, that it still retains some unique features. The materialism consciously espoused by Holt and intimated, perhaps unwittingly, by Perry, Marvin, and to less marked degree by Pitkin and

Spaulding, must be rejected. Memory and prediction indicate the presence in consciousness of a time-transcending element which may be considered substance.

Neo-realists contend that ultimate reality involves no basic substance interpreted either as a substratum or an organic whole to or within which particular entities are related. They reject substance in ontology because it is a speculative dogma, a purely formal notion, and because it implies a unity, exclusive organization, and causal agency which cannot be validated. Instead of substance neo-realists find neutral entities or subsistents to be basic in the universe. These entities vary in complexity from logical and mathematical concepts to ideals and values. Considered apart from existence such entities possess the attributes of permanence and self-existence , which have generally been assigned to substances. Logical implication is substituted for causality by neo-realists but the difficulties in this procedure require the reinstatement of substance as the ground of activity and change in reality. The theory that substance is an underlying principle of definite and distinguishable character which provides the unity, generality, and activity in reality may be retained.

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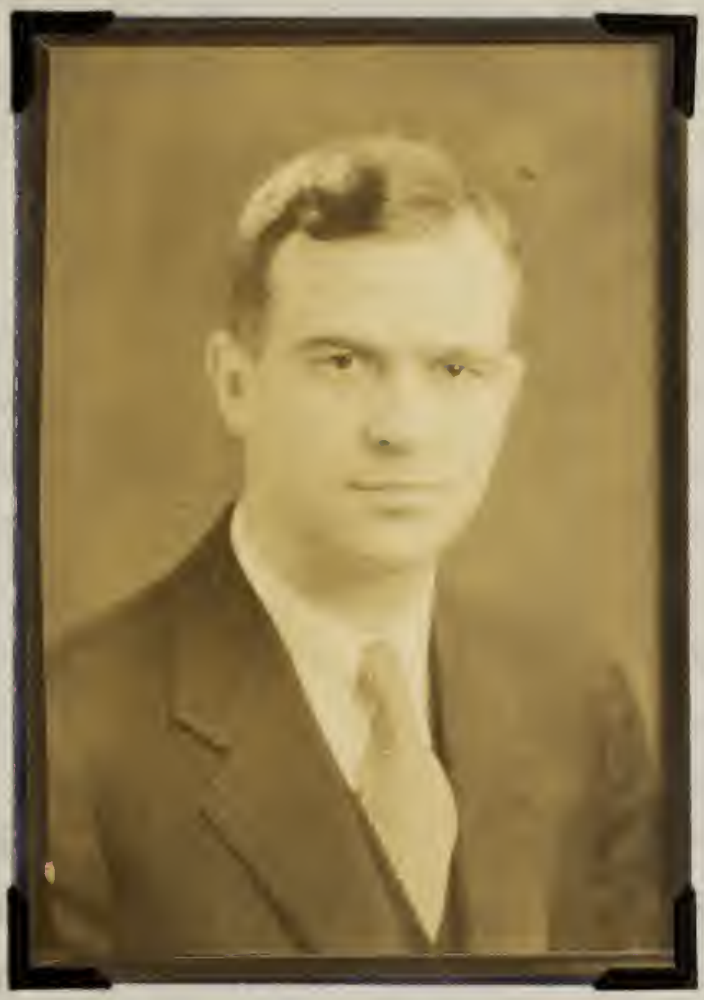

Louis William Norris

I was born at Columbus, Ohio, February 3, 1906, as the third child of Vernon Warden and Julia Hamilton Norris. My grammar and high school education was obtained at Westerville, Ohio, and in 1924 I entered Otterbein College, located in the same town. I was graduated from this institution in 1928 with the A. B. degree.

In the fall of 1928 I matriculated at the Boston University School of Theology, and during my senior year there I served as the student assistant in the department of New Testament. For 1931-1932 I was made the Roswell R. Robinson Fellow, my graduation with the degree of S. T. B. having taken place in June of 1931. A theological fellowship under the auspices of the Institute of International Education for that same year was also awarded to me, and consequently the ensuing fifteen months were occupied with travel and study in Europe. Two semesters were spent at the University of Berlin in the academic year of 1931-1932.

From 1930 to 1931 and from 1932 until the present, I have served as pastor of the Dunstable Evangelical Congregational Church. In 1934-1935 I filled the position of Bowne Fellow in connection with my graduate studies in philosophy at Boston University. During the present academic year I have also been registered as a graduate student at Harvard University. I am now under appointment as an assistant professor of philosophy at Baldwin-Wallace College located in Berea, Ohio, and expect to assume this position in September, 1937.